

INTERNATIONAL CONFERENCE



National and University Library in Zagreb  
18 - 20 March 2021, Zagreb, Croatia

BOOK OF ABSTRACTS

<http://hpcc.nsk.hr/>



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## Organiser

National and University Library in Zagreb



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LIBRARY  
IN ZAGREB

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## Supporters

Ministry of Culture and Media of the Republic of Croatia



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The programme is being carried out within the Year of Reading



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Croatian State Archives



Ethnographic Museum



ICOM Croatia



IIC – Croatian Group



Ruder Bošković Institute, Radiation Chemistry and Dosimetry Laboratory



University in Dubrovnik, Department for Art and Restoration



OEM – City Office of Emergency Management; City of Zagreb



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**Marin Vuković**, *University of Zagreb, Faculty of Electrical Engineering and Computing*  
**Vesna Živković**, *National Library of New Zealand; Te Puna Mātauranga o Aotearoa*

## About the Conference

In response to the current global threats to world heritage that call for urgency in developing comprehensive heritage protection strategies, the National and University Library in Zagreb is organising the international conference “Solidarity in culture: Heritage protection under conditions of crisis”, in Zagreb, from 18 to 20 March 2021.

The organizers have recognized the synergetic benefits of the solidarity networks of cultural institutions, yielding the most effective and immediate results in prevention, response and recovery efforts in culture, adding towards the existing general emergency services support.

The aims of the conference are to facilitate understanding and dialogue about new approaches to integrated conservation and risk management based on solidarity and cooperation between diverse partners that provide potential for resilience-building to disasters.

They will present new perspectives on the work in the cultural heritage sector, research results and their specific insights and experiences in the context of heritage management in times of crisis.

Two earthquakes affected Croatia last year - Zagreb on March 22nd (5.5 Richter scale) and Croatia region Banija on December 29th (6.2 Richter scale). They seriously damaged heritage monuments and sites. And this happened while the cultural professionals and general public were faced with the previously unimaginable situation of social isolation caused by COVID-19 pandemic.

These combined crisis factors have caused damage and continue to affect our cultural heritage on multiple levels: protection, preservation and management of heritage, protection of cultural professionals, our visitors and users as well as advocacy of the importance of heritage protection in broad society that currently deals with life threatening situation.

Heritage preservation and protection under conditions of crisis is a system of continuous, integrated and networked activities, information, resources and participants whose goal is to ensure efficient use of all available resources to achieve the highest possible level of heritage protection and institutions' resilience. One of the most important aspects in this holistic approach is development of intersectoral solidarity network that can be also understood as network of key partners on national level. Intra- and intersectoral cooperation, integrated and broadly conceived approach to heritage protection and conservation and different models of development of solidarity networks on national and international levels are the main focus of conference presentations.

**Virtual INTERNATIONAL CONFERENCE**  
***Solidarity in Culture: Heritage Protection Under Conditions of Crisis***  
18 - 20 March 2021

## PROGRAMME

### THURSDAY, 18 MARCH 2021

**9:00 a.m. CET (8:00 a.m. UTC)**

8:00 a.m. Registration

9:00 a.m. Welcome Addresses and Opening of the Conference

**10:00 a.m. – 11:30 a.m. KEYNOTE SESSION 1**

**Moderator:** Goranka Horjan

***Future-Proofing Heritage: Futures Thinking Approaches to Aid Recovery and Renewal During the COVID-19 Crisis***

**Chiara Ronchini**, Historic Environment Scotland, UK

***Building Capacity for Multi-Hazard Disaster Risk Management of Cultural Heritage***

**Aparna Tandon**, ICCROM, Italy

***Digitisation of Cultural Heritage***

**Jelena Rubić**, Ministry of Culture and Media of the Republic of Croatia, Croatia

11:30 a.m. – 11:40 a.m. Break

**11:40 a.m. – 1:00 p.m. PARALLEL SESSIONS 1**

Invited lectures 1: ***POLICY, CONCEPTS AND PERSPECTIVES***

**Moderator:** Darko Babić

***Libraries Facing the Coronavirus Pandemic***

**Jasna Malešič & Damjana Vovk**, National and University Library of Slovenia, Slovenia

***When a City Falls – the Christchurch Earthquakes 2010 and 2011***

**Lynn Campbell**, Campbell Conservation, New Zealand

***Change Starts in Our Own Corner or How to Build Resilience in Museums***

**Goranka Horjan**, Etnographic Museum, Croatia

Oral session 1: ***FRAMEWORKS AND APPROACHES***

**Moderator:** Vesna Živković

***Of “Virtues and Failings”: Managing Culture in a Crisis***

**Graham Bell**, Europa Nostra, Netherlands

***The Challenges of Creating a Professional Framework for the Protection of Movable Cultural Heritage in Emergency Situation-Serbia Case Study***

**Natalija Čosić**, independent senior preventive conservator, **Marija Radin**, Central Institute for Conservation, Serbia



### *Clarifying Collections*

Joachim Huber, Prevart Ltd, Switzerland

### *Crisis? Let's Digitize! (How the Crisis Situation Affected the Process of Digitization in a Museum)*

Jelena Balog Vojak & Maja Mladinov,  
Croatian History Museum, Croatia

1:00 p.m. – 1:30 p.m.

Break

**1:30 p.m. – 2:50 p.m.**

## **PARALLEL SESSIONS 2**

### Invited lectures 2: **RISK REDUCTION AND CAPACITY BUILDING**

**Moderators:** Rohit Jigyasu and Tamara Štefanac

#### *Resilience Thinking for Integrating Disaster Risk Reduction and Climate Action in Heritage Management*

Rohit Jigyasu, ICCROM, Italy

#### *Disaster Risk Management Through the Eyes of Local and Indigenous Heritage Institutions and Communities*

Vesna Živković & Vicki-Anne Heikell:  
Alexander Turnbull Library - National Library of New Zealand, New Zealand

#### *Determining the Seismic Vulnerability of Collections and Implementing Programs to Mitigate Earthquake Damage*

Jerry Charles Podany, retired senior conservator/J. Paul Getty Museum, USA

#### *Presentation of the ProteCHT2save Project*

Marijana Mišerda Bajić, City of Kaštela, Croatia

### Oral session 2: **CHALLENGES AND OPPORTUNITIES IN DISASTER RISK REDUCTION**

**Moderator:** Natalija Čosić

#### *Integration of Public Art into Disaster Risk Management: Challenges and Opportunities*

Marta Gomez Ubierna, University of Florence, Italy

#### *Assessing, Preventing and Reducing Risks - the Importance of a Long-Term Systematic Approach*

Valentina Ljubić Tobisch, freelancer, Croatia, Mirta Pavić, Museum of Contemporary Art, Croatia

#### *Academic and Special Libraries in Croatia and Their Crisis Preparedness*

Jelena Duh, Aleksandra Pikić & Lucija Ašler, National and University Library in Zagreb, Croatia

#### *Earthquake and the Pandemic on Top of Old Problems – Work of the Croatian History Museum After the Zagreb Earthquake of March 2020 and During the COVID-19 Pandemic*

Mislav Barić, Croatian History Museum, Croatia

#### *Precautious Steps in Preventing and Protecting Old Books Collection Items*

Irena Galić Bešker, National and University Library in Zagreb, Croatia

2:50 p.m. – 3:00 p.m.

Break

**3:00 p.m. – 3:30 p.m.**

### **POSTER SESSION 1**

**Moderator: Denis Vokić**

#### ***The Importance of an Integrating Framework for Protection of Library Resources from Disaster Risks***

**Dragica Krstić & Breza Šalamon-Cindori**, National and University Library in Zagreb, Croatia

#### ***Traditional Crafts and Trades in the Restoration of Cultural Heritage***

**Ivana Sambolić**, IIC-Croatian Group, Croatia

3:30 p.m. – 3:40 p.m. Break

**3:40 p.m. – 4:00 p.m.**

### **PERSONAL STORY FROM THE FIELD**

**Zenon Sokolovskyj**, King Danylo University, Ivano-Frankivsk, Ukraine

#### ***Sacral Architecture Preservation in Western Ukraine During the Soviet Union Era***

**4:00 p.m. – 5:00 p.m.**

### **ROUNDTABLE DISCUSSION**

#### ***How to Involve Volunteers in Heritage Preservation?***

**Moderator: Jovana Mijatović**

**Participants:**

**Robert D. Montoya**, University of California Los Angeles, USA

**Svjetlana Jović**, United Nations Interim Force in Lebanon

**Bert Ludwig**, European Heritage Volunteers

**Žana Matulić-Bilač**, IIC-Croatian Group, Croatia

**Jovana Mijatović**, Kulturnaut - Center for Creative Children and Youth, Serbia

**Juraj Požgaj**, Volunteers Centre Zagreb, Croatia

## FRIDAY, 19 MARCH 2021

9:00 a.m. CET (8:00 a.m. UTC)

9:00 a.m. – 10:30 a.m. **KEYNOTE SESSION 2**

**Moderator:** Aparna Tandon

*Solidarity in Cultural Heritage: Synergies, Understandings and Opportunities in Coming Together to Protect Our Collective Cultural Heritage*

**Christopher Marrion**, ICOMOS-ICORP / Marrion Fire and Risk Consulting PE LLC, USA,  
**Zeynep Gül Ünal**, ICOMOS-ICORP / YTU, Turkey

*The Blue Shield*

**Peter Stone** OBE, UNESCO / The Blue Shield / Newcastle University, UK

*Leadership in Times of Crisis*

**Lizzy Moriarty**, Cultural Innovations Ltd, UK

10:30 a.m. – 10:40 a.m. Break

10:40 a.m. – 12:20 p.m. **PARALLEL SESSIONS 3**

Invited lectures 3: **NETWORKING, COORDINATION AND COLLABORATION (AND INTEROPERABILITY)**

**Moderator:** Svjjetlana Jović

*Civil Society and Endangered Heritage: The 7 Most Endangered Programme*

**Guy Clausse & Sneška Quaedvlieg-Mihailović**, Europa Nostra, Netherlands

*The Role of the Croatian Civil Protection Directorate in the Protection of Cultural Heritage/The Italian Experience and Its Contribution to the Union Civil Protection Mechanism in Reinforcing Cultural Heritage Protection Through the PROCULTHER Project*

**Sanda Milošević**, Ministry of the Interior of the Republic of Croatia, Civil Protection Directorate, Croatia, **Veronica Piacentini**, Italian Presidency of the Council of Ministers, Civil Protection Department, Italy

Oral session 3: **SOLIDARITY AND VOLUNTEERING**

**Moderator:** Tamara Štefanac

*Rebuilding Libraries in Time of Overlapping Crisis*

**Irena Šimić & Lina Šojat**, Institute of Art History, Croatia, **Magdalena Blažić & Filip Kartelo**, Faculty of Humanities and Social Sciences - University of Zagreb, Croatia

*The European Solidarity Corps in the Restoration of Cultural Heritage in Post-Crisis Situations - the Basilica of St Benedict in Norcia*

**Antonija Ujević**, Faculty of Humanities and Social Sciences in Split, Croatia

*Between Social Needs and Heritage Safeguard - Examples of Solidarity and Cooperation During the COVID-19 Crisis*

**Inês Costa**, Faculdade de Letras da Universidade do Porto, Portugal

***Emergency Preparedness Plans of Zagreb Museums in the Light of Zagreb Earthquake 2020 and Overview of Earthquake Damage in Museums Buildings***

**Ivana Krišto**, City Office of Emergency Management at City of Zagreb, Croatia,  
**Josip Atalić**, University of Zagreb – Faculty of Civil Engineering, Croatia, **Pavle Kalinić**, City Office of Emergency Management at City of Zagreb, Croatia

***Cultural Property Protection Inventories in Armed Conflict***

**Emma Cunliffe**, Newcastle University / The Blue Shield, UK

***Risk Assessment of Indoor Spaces – Prevention of Negative Microclimatic, Natural and Anthropogenic Influences***

**Matijana Jergović**, **Ivana Hrga & Ivančica Kovaček**, Andrija Štampar Teaching Institute of Public Health, Croatia

12:20 p.m. – 1:00 p.m.

Break

**1:00 p.m. – 2:10 p.m. KEYNOTE SESSION 3**

**Moderator:** Chiara Ronchini

***Extracting and Applying Archival Knowledge in Times of Crisis***

**Anne J. Gilliland**, University of California Los Angeles, USA

***Opportunities for Collaboration Between the Ionizing Radiation Field and the Field of Cultural Heritage***

**Valentin Moise**, IFIN-HH, Romania

2:10 p.m. – 2:30 p.m.

Break

**2:30 p.m. – 3:30 p.m. PARALLEL SESSIONS 4**

**Oral session 4: CONTRIBUTION OF EDUCATION, SCIENCE AND TECHNOLOGY**

**Moderator:** Jasna Malešić

***An Indigenous Education Policy as the Panacea for Promotion of Africa's Cultural Heritages: The Nigeria's Case Study***

**Oni Oluwafemi**, CITCC Nigeria Limited / Department of General Studies, Nigeria

***A Whirl of Solidarity of IIC – Croatian Group in 2020/2021 (Regional Group of International Institute for Conservation IIC)***

**Žana Matulić Bilač**, IIC-Croatian Group, Croatia

***Earthquake Consequences and Solidarity Volunteering in the Glyptothèque of the Croatian Academy of Sciences and Arts***

**Magdalena Getaldić**, Croatian Academy of Sciences and Arts – Glyptothèque, Croatia

**POSTER SESSION 2**

**Moderator:** Valentina Ljubić Tobisch

***Solidarity in Action – Saving Written Heritage From Vukovar Municipal Museum***

**Đuro Singer & Dragica Krstić**, National and University Library in Zagreb, Croatia

***Research Activities in the Pandemic Era:  
Limitations and Potentials***

**Ivan Kokeza**, Croatian History Museum,  
Croatia

***Teaching Risk Identification Through  
Real-World Examples: Risk Assessment as a  
Preventive Conservation Tool***

**Sagita Mirjam Sunara**, University of Split -  
Arts Academy, Croatia

***Protecting the Cultural Heritage of Cochin  
Using Artificial Intelligence***

**Anjali Antony**, CHRIST (Deemed to be  
University), India

***Croatian Group Research Forms Aimed  
at Improving the Earthquake Protection  
System***

**Jelena Ćurić**, IIC-Croatian Group, Croatia,  
**Mirta Pavić**, Museum of Contemporary Art,  
Croatia, **Jasna Širec**, Independent, Croatia,  
**Jerry Charles Podany**, retired senior  
conservator/J. Paul Getty Museum, USA

***Lost Unities***

**James Lowry**, City University of New York,  
USA, **Forget Chaterera-Zambuko**: National  
University of Science and Technology,  
Zimbabwe

**POSTER SESSION 3**

**Moderator: Marin Vuković**

***Centre for Continuing Education of  
Librarians in Croatia: Providing Support in  
Knowledge Dissemination About Heritage  
Protection***

**Antonija Filipeti**, National and University  
Library in Zagreb, Croatia

***Digital Data Preservation in National and  
University Library in Zagreb***

**Marko Orešković & Ratko Počuča**,  
National and University Library in Zagreb,  
Croatia

***Security Requirements for Digital Heritage  
Protection***

**Marin Vuković**, University of Zagreb  
– Faculty of Electrical Engineering and  
Computing, Croatia, **Tamara Štefanac**,  
National and University Library in Zagreb,  
Croatia

**3:30 p.m. – 5:30 p.m.      WORKSHOP 1**  
**Radiation Technology for Heritage Protection**

**Moderator:** Branka Mihaljević

Thematic lectures:

***Radiation Technology for Protection of Artworks and Cultural Heritage - an Overview of Success Stories in Croatia - IN MEMORY OF DUŠAN RAŽEM, PhD***

**Branka Mihaljević, Katarina Marušić, Branka Katušin-Ražem & Dušan Ražem**, Ruder Bošković Institute, Radiation Chemistry and Dosimetry Laboratory, Croatia

***Radiation Technology Under the Conditions of Crisis - Example From the Croatian War of Independence***

**Branka Katušin Ražem, Katarina Marušić & Branka Mihaljević**, Ruder Bošković Institute, Radiation Chemistry and Dosimetry Laboratory, Croatia

***“Gamma” Remedial Conservation After Disaster: A Technique Not to Be Overlooked***

**Laurent Cortella**, ARC-Nucleart, France

***Trends and Applications of Ionizing Radiation for Preservation of Cultural Heritage Tangible Artifacts Contribution of Education, Science and Technology to Strengthening Resilience of Cultural Heritage at Risk of Disasters***

**Pablo Vásquez & Maria J.A. Oliveira**, Nuclear and Energy Research Institute - IPEN/CNEN, Brazil, **Maria Nagai & Ana C.D. Vieira**, University of Sao Paulo, Brazil, **Leni Lima**, Instituto Florestal, Brazil, **Paulo Santos**, Nuclear and Energy Research Institute - IPEN, Brazil

***Post-Irradiation Effects on Properties of Paper***

**Constantin Daniel Negut & Ion Bogdan Lungu** IFIN-HH, Romania, **Silvana Vasilca**, IFIN-HH, Romania/University of Bucharest – Faculty of Chemistry, Department of Analytical Chemistry, Bucharest, Romania

***Preventive Protection and Gamma Irradiation of Cultural Heritage, Examples of Croatian State Archives Heritage Conservation in Post-Disaster Situation***

**Igor Kozjak**, Croatian State Archives, Croatia

***The Influence of Gamma Radiation on the Binders in Paint Layers***

**Domagoj Šatović, Valentina Meštrić & Vladan Desnica**, University of Zagreb – Academy of Fine Arts, Croatia, **Branka Mihaljević & Katarina Marušić**, Ruder Bošković Institute, Radiation Chemistry and Dosimetry Laboratory, Croatia

**5:30 p.m. – 6:15 p.m. WORKSHOP 2**

***After the Earthquake – Damages on Wooden Objects and the First Steps of Preservation***

**Maja Sučević-Miklin**, Independent, Croatia

**Marija Reberski**, Croatian Conservation Restoration Association, Croatia

## SATURDAY, 20 MARCH 2021

9:00 a.m. CET (8:00 a.m. UTC)

9:00 a.m. – 10:00 a.m. **KEYNOTE SESSION 4**

**Moderator:** Denis Vokić

### *Conservation of Re-Used Bindings*

**Rita Udina**, Book and Paper Conservation, Spain

### *Evaluation of Materials Used for the Preservation and Storage of Library Collections*

**Tomislav Cigula**, University of Zagreb – Faculty of Graphic Arts, Croatia

**Gabriela Aleksić**, National and University Library in Zagreb, Croatia

10:00 a.m. – 10:10 a.m. **Break**

10:10 a.m. – 11:20 p.m. **PARALLEL SESSIONS 5**

#### Oral session 5: **SAFEGUARDING AND SECURING HERITAGE IN DANGER**

**Moderator:** Valentina Ljubić Tobisch

##### *S.O.S. for Vernacular (Traditional) Built Heritage in Croatia*

**Sanja Lončar**, University of Zagreb – Faculty  
of Humanities and Social Sciences, Croatia

##### *Ceramics - a Part of Architecture: Simple Handicrafts - an Issue for the Cultural Heritage*

**Kristina Kojan Goluža & Vasilija  
Todorović**, IIC-Croatian Group, Croatia

##### *Heritage Conservation in Post-War Conditions: Dubrovnik Research Library*

**Tina Di Reda, Damjan Polić & Paula  
Raguž**, Dubrovnik Libraries, Croatia

##### *Emergency Evacuation of Krsto Hegedušić Gallery in Petrinja*

**Dunja Nekić**, Museum of Arts and Crafts,  
Croatia, **Iva Validžija & Dunja Vranešević**,  
Museum Documentation Center, Croatia

#### **POSTER SESSION 4**

**Moderator:** Vesna Živković

##### *Methods Used in Restoration of Flood Damaged Paper Objects*

**Tanja Dujaković & Sanja Serhatlić**,  
University of Dubrovnik - Art and  
restoration department, Croatia

##### *Conservation and Restoration of Miroslav Šutej's Bum-Bum Mobile Damaged in the Earthquake*

**Petra Kursar & Ana Dumbović**, Modern  
Gallery, Croatia

##### *Risk Management of Cultural Heritage: Project "4 Universities 4 Konavle"*

**Danijela Jemo**, University of Dubrovnik -  
Art and Restoration Department, Croatia,  
**Antonia Rusković-Radonić**, Museums  
and Galleries of Konavle, Croatia, **Mateo  
Miguel Kodrič Kesovia & Viktorija  
Pilon**, University of Dubrovnik - Art and  
Restoration Department, Croatia

***One Museum - Several Catastrophes***

**Zvezdana Jembrih & Ana Božičević,**  
University of Zagreb – Academy of Fine  
Arts, Croatia

***After the Earthquake: A Proposal for  
Packing, Transportation and Future  
Display of a Damaged Object From the  
Zagreb Museum of Arts and Crafts***

**Bruna Vrljićak & Sagita Mirjam Sunara,**  
University of Split – Arts Academy, Croatia

**POSTER SESSION 5**

**Moderator: Gabriela Aleksić**

***Post-Earthquake Priorities in St. Catherine  
Church in Zagreb, Croatia***

**Mario Fučić,** retired senior conservator-  
restorer Croatian Conservation Institute,  
Croatia

***Protection of Archival Records in the Making***

**Petra Špoljarić,** State Archives Bjelovar,  
Croatia

***Solving Problems Brought by the  
Earthquake and the Pandemic in Public  
and School Libraries in Croatia***

**Dunja Marija Gabriel & Frida Bišćan,**  
National and University Library in Zagreb,  
Croatia

***Heritage Rescue in Flood-Prone Areas in  
the Settlements of Gunja, Račinovci and  
Rajevo Selo***

**Marija Reberski,** Croatian Conservation  
Restoration Association, Croatia, **Martina  
Mišetić,** Muzej Cvelferije, Croatia



11:20 a.m. – 11:35 a.m. Break

**11:35 a.m. – 12:20 p.m. WORKSHOP 3**

*Determining Quantity Structure for the Storage and Storage Technology Planning in Museums*

Joachim Huber, Prevart Ltd, Switzerland

12:20 p.m. – 12:50 p.m. Break

**12:50 p.m. – 2:20 p.m. WORKSHOP 4**

*Are you Ready? Preparing for Disasters to Lessen the Impact of Damage*

Jeanne Drewes, Library of Congress, USA

2:20 p.m. – 3:00 p.m. Closing Remarks

**Additional Multimedia Content:**

**1. Documentary film**

*How to Salvage Valuables After Serious Flooding – Archives Rescue Center, Kerestinec – CSA*

Marijana Mimica Tkalčec, Martina Bagatin, Mladen Burić and Igor Kozjak  
Croatian State Archives, Croatia

**2. Documentary Film**

*From Petrinja With Love*  
Ambedo Media

**3. Virtual Exhibition**

*Earth 5.5*  
Antonia Tikvica

**4. Musical performance**

*Lidija Bajuk musical performance*  
Lidija Bajuk Quartet

During the conference breaks all the participants will have the opportunity to follow the multimedia content. That content will also be available on the conference official web sites <http://hpcc.nsk.hr/>



## ABSTRACTS

## ***Future-Proofing Heritage: Futures Thinking Approaches to Aid Recovery and Renewal During the COVID-19 Crisis***

**Chiara Ronchini**

Historic Environment Scotland, Scotland

Due to the COVID-19 crisis, our operating environment is ever-changing, and the future is difficult to predict. There are many variables – such as the speed of containment of the pandemic, the impact on the economy and speed of recovery – which can shape possible future scenarios. How can organisations respond to a crisis and plan for recovery when dealing with multiple future uncertainties? Historic Environment Scotland (HES), like many other heritage agencies around the world, has been facing the challenge to create resilience and sustainability in its operations during this crisis, whilst wading through the limitations of the sector – lack of funding, insular and short-sighted perspectives, and barriers to broader engagement and collaboration. This paper aims to illustrate the approach that HES has been taking to plan for recovery and renewal by applying Futures Thinking techniques. I will explore how different Futures Thinking techniques have been used to build flexibility in HES's work when facing an uncertain future. Starting from the premise that 'no scenario is more likely, all scenarios are equally possible', this paper will show how scenario planning can be effectively used to map critical uncertainties and identify business priorities across different possible scenarios. I will also examine how the methodology used in this process will help develop a Futures Thinking toolkit in support of all our operations. This is only the start of a long process for HES. This paper aims to illustrate the journey taken so far to embed Futures Thinking techniques in the organisation, how we engaged with these and used them to begin this process.

## ***Building Capacity for Multi-Hazard Disaster Risk Management of Cultural Heritage***

**Aparna Tandon**

ICCROM, Italy

Confronted with overlapping risks such as the ongoing pandemic and extreme hazard events that are driven by climate change and other risk factors, cultural heritage institutions will have to mitigate multiple risks at the same time and enhance their capacities to respond in the event of large scale and complex emergencies. This presentation will share insights gained by the ICCROM through its international capacity building programme on First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR). It will outline widely applicable strategies for multi-hazard disaster risk management of cultural heritage, which also contribute to climate change mitigation and adaptation. The presentation will introduce scenario-based planning and offer ways in which inter-agency coordination and cooperation between heritage, civil protection, disaster risk reduction and humanitarian aid sectors could be enhanced.

## *Digitisation of Cultural Heritage*

**Jelena Rubić**

Ministry of Culture and Media of the Republic of Croatia, Croatia

Today's technologies generate numerous new challenges and possibilities for preserving and representing cultural heritage, offering powerful tools for processing, protecting and making accessible cultural contents. New tools open up communication spaces for spending time, acquiring and exchanging experiences and offering, seeking, and encountering contents and services from all fields of human activities. Activities connected with cultural heritage are markedly directed towards information and communication technologies: they depend on the quality and accessibility of information regarding stored and offered contents, as well as on the possibility of having the largest possible number of users access its contents and services in an easy and simple manner. The use of information and communication technologies in the digitisation of services and data regarding the most valuable cultural heritage is the foundation for developing these activities and the institutions engaged in them. The digitisation of cultural heritage and introduction of services based on contents created gives Europe's rich cultural heritage a clear profile on the Internet – promoting regions, protecting cultural diversity and contributing to a better quality of life. The Ministry of Culture and Media has conducted extensive policy, coordination, and funding actions to supplement CHI in the areas of digitisation and online access to cultural material and digital preservation.

## ***Solidarity in Cultural Heritage: Synergies, Understandings and Opportunities in Coming Together to Protect Our Collective Cultural Heritage***

**Christopher Marrion<sup>1</sup> and Zeynep Gül Unal<sup>2</sup>**

1 - ICOMOS-ICORP / Marrion Fire and Risk Consulting PE LLC, USA

2 - ICOMOS-ICORP, YTU, Turkey

The Global Assessment reports show that the impacts of natural and human-made disasters continue to increase, including those due to climate change and pandemics. These impact not only our lives, livelihoods, and communities but also our tangible and intangible cultural heritage. In effectively and efficiently responding to these, we must come together in solidarity, including at strategic, operational and tactical levels, to successfully protect our global heritage from disasters and crises; we must work together synergistically and address these throughout all phases of disaster risk management, including prevention, mitigation/adaptation, response and recovery. In supporting this objective, this presentation will provide further discussions and case studies, including regarding the criticality and further need for:

- Capacity building of all stakeholders;
- Safety policies, regulations, laws, and national disaster response plans appropriately incorporating the protection of heritage;
- Inclusive discussion amongst diverse partners and stakeholders;
- Including the Culture Sector in the UN Cluster System in Emergency Response;
- Cooperation between civil and cultural heritage stakeholders;
- Contributions of both indigenous knowledge and the latest science/technology in developing effective protection strategies;
- Institutional solidarity within the cultural sector;
- Integration of systems and methods and new technologies;

and how each of these has a place in each phase of disaster risk management to protect our collective heritage and support the development of resilient communities and contribute to supporting the UN2030 Agenda and sustainable development goals.

*The Blue Shield***Peter Stone** OBE

UNESCO / The Blue Shield / Newcastle University, United Kingdom

The protection of cultural property in armed conflict and following natural and/or human-made disasters (CPP) will never be achieved by the heritage community shouting that CPP must be taken seriously by the political, military and humanitarian communities because of its heritage importance alone. We need to show the relevance and importance of good CPP activity to all of these communities in the delivery of their own aims and missions. This presentation introduces the work of the international NGO, the Blue Shield, which is committed to working with these communities, encouraging them to see the relevance and importance of CPP to their disparate agendas. Currently, the Blue Shield comprises an international Board and Secretariat, presently based at and funded by Newcastle University through its UNESCO Chair in Cultural Property Protection & Peace, and together referred to as 'Blue Shield International (BSI)', and 28 national committees (<https://theblueshield.org/>). Our primary framework is the 1954 Hague Convention on the Protection of Cultural Property in the Event of Armed Conflict and its two Protocols, but the organisation works with the broader context of UN Security Council Resolutions (e.g. 2199, 2347, and 2368) and UNESCO's cultural conventions and broader cultural protection strategy (e.g. the 2003 UNESCO Declaration Concerning the Intentional Destruction of Cultural Heritage). It is also informed by international initiatives regarding natural/human-made disaster such as the Sendai Framework for Disaster Risk Reduction.

*Leadership in Times of Crisis***Lizzy Moriarty**

Cultural Innovations Ltd, United Kingdom

When we think of crisis management, we tend to think "what should we be doing?" However, it starts with something different, "how should we be thinking?" To answer this question, we need to understand what a crisis is and what it is not. Crises come in different forms. What they all have in common is uncertainty. This points to the key difference between a crisis and an emergency. In the latter, the outcome is clear, and the path to it is a case of following preordained well thought through procedures. In a crisis, the outcome is not clear, it has to be discerned, and the route to it has to be created, iteratively responding to events as they unfold. This fundamental difference requires flexible leadership and dictates the nature of our response, shaping our thoughts and actions; it necessitates a different mindset and approach. So, how to respond? The way out of a crisis emerges over time, so leaders must create the conditions for emergence. Leadership is key, but a style of leadership which is the antithesis of hierarchy. Innovation is the exit route, and this necessitates relinquishing control, empowering others and experimentation. It represents a profound culture change for many institutions, and therein lies the challenge.

*Extracting and Applying Archival Knowledge in Times of Crisis***Anne J. Gilliland**

University of California, USA

Archives are integral to understanding how crises historically developed and were addressed or managed – recent examinations of historical data about the 1918 Spanish Flu Pandemic to gain insights potentially relevant to the COVID-19 pandemic would be a particularly salient example. Similarly, longitudinal climate data has been essential for research on climate change. Archives have also been essential for tracking the long-term consequences of crises, repatriating populations, and supporting claims for reparations and reclaiming land and property. Recent research has further pointed to the roles that archives and recordkeeping more broadly should and do play in creating and resolving highly complex crises associated with natural disasters, political upheaval, famine, disease and so forth. Archives, as heritage repositories, are frequently at risk physically, politically and economically during and after such crises because of their content, their symbolic status and often inadequate resources. However, this paper will argue that their contents become even more important at these moments because of the insights they can provide. At the same time, our ability to recover and extract knowledge about prior or even current crises from archives is tightly related to how much the scope and handling of those archives anticipated such kinds of uses. Therefore, this paper will present recent research that reconsiders archival documentary, appraisal and metadata practices, as well as predictive algorithmic design from the perspective of anticipating extracting and applying archival knowledge in unfolding and future crises.

## ***Opportunities for Collaboration Between the Ionizing Radiation Field and the Field of Cultural Heritage***

**Valentin Moise**

IFIN-HH, Romania

The nuclear field has a well-established presence in modern society, with significant contributions to energy and medicine. A lesser-known application is the use of ionizing radiation to disinfect tangible cultural heritage and related objects. The industrial application of radiation processing (γ-rays or electron beams) includes radiation sterilization of medical supplies and pharmaceuticals, processing of polymeric materials and disinfection of food. Of course, even when it comes to radiation produced by the radioisotope nucleus or high-energy accelerated electrons, the irradiated material does not become radioactive. Ionizing radiation acts only on chemical bonds, and the biocidal effect is mainly given by the breaking of DNA strands. As all industrial irradiators operate in one or more of the above areas, radiation treatment for disinfection of cultural heritage objects cannot be considered a separate industrial application. It is more of an opportunity for cooperation, and in Romania, there is a history of over 15 years of such cooperation for the large-scale treatment of collections affected by biological attacks. A biological attack is a crisis situation for any owner of cultural materials, whether historical or modern ones. A biological attack is almost always installed when storage conditions are compromised: due to natural or man-made disasters, lack of funding or simply negligence. Virtually any type of crisis (economic or social) can lead to a crisis for the conservation of cultural heritage, and there are very few effective means of combating large-scale biological attacks. Due to the global presence of industrial irradiators, radiation treatment can be applied in any region, for large quantities and in a short time, and should be taken into account in any emergency planning.



## *Conservation of Re-Used Bindings*

**Rita Udina**

Book and Paper Conservation, Spain

Book conservation involves a tough decision making regarding usability and long term preservation due to the fact that a book is meant to be handled in order to read it.

This ethical considerations become even more complex when re-used materials are part of the binding, either because the binding is a document itself (for instance, a parchment manuscript) or also when the binding is a reused one. The adjustments made by the craftsmen in the rebinding process should be kept as an evidence of this historical fact, and yet we might be interested in keeping other data from the firstly used materials. At the same time, preservation commands to take decisions in order to stabilize the object.

The lecture focuses on study cases showing that decision making can only be a custom-made for each particular book.

## *Evaluation of Materials Used for the Preservation and Storage of Library Collections*

**Tomislav Cigula<sup>1</sup> and Gabriela Aleksić<sup>2</sup>**

1 - University of Zagreb – Faculty of Graphic Arts, Croatia

2 - National and University Library in Zagreb, Croatia

The lifespan and condition of cultural heritage collections are affected by various factors. The environmental conditions in which they are stored and exhibited, human activities such as proper care and handling, as well as the preparedness and response to frequent emergencies and disasters, play an important role in preserving valuable objects. The purpose of preventive conservation is to protect the objects by avoiding, blocking or minimizing the harmful effects of various factors. One of the methods of preserving the objects is their encasement. The protection provided by the appropriate preservation enclosure can reduce the negative impact of external factors and act as a shield during catastrophic events such as earthquakes, floods or wars. This paper aims to evaluate the properties of paper-based materials used in the preventive conservation of collections to gain insight into the protective role of such materials. For the purpose of this research, the nine most common storage and preservation materials in the collections of the National and University Library were examined and evaluated by determining their moisture content, smoothness (Bekk method), water absorptiveness (Cobb test), water vapour permeability, water wettability (contact angle), tensile strength, bursting strength (Mullen test), puncture strength and folding endurance. The research proved the importance of evaluating materials. It also showed the benefits of choosing the ones with the most suitable properties for the preservation of cultural heritage objects, especially during unexpected events.

## *Libraries Facing the Coronavirus Pandemic*

**Jasna Malešič and Damjana Vovk**

National and University Library of Slovenia, Slovenia

Since the global coronavirus outbreak in 2020 caused by SARS-CoV-2, the libraries, archives and museums worldwide have been facing concerns associated with the risk of virus transmission through the surfaces and objects. Before reopening the above-mentioned institutions in spring/summer 2020, several recommendations have been issued by the representatives of public health organisations, various associations and individual institutions. From March 2020 onwards, studies, including the REALM research, have been conducted to provide information on how long the virus may survive on materials common to archives, libraries and museums.

For the library materials, usually “books quarantine” varying in time intervals has been recommended with no active disinfection measures, such as cleaning or disinfecting books using bleaching agents, alcohols or UV light. The conservators have suggested that the easiest, safest, and most inexpensive disinfectant for library materials is time. Even the eligibility of “books quarantine” in libraries might be questionable nowadays, as some researches claim that the possibility of transmission through inanimate surfaces is very low. However, due to the fear of transmitting the disease, various practices have been applied to disinfect the library material. The contribution reviews new findings and recommendations related to a possible infection through the library materials and presents practices in force in Slovenia during the first and the second wave of the epidemic this spring and autumn, and that might be applicable also during a potential third wave of the epidemic, in winter 2020.

*When a City Falls – the Christchurch Earthquakes 2010 and 2011***Lynn Campbell**

Campbell Conservation, New Zealand

At 5:43 on Saturday 4th September 2010, the Canterbury district in New Zealand was shaken by a 7.1 magnitude earthquake. The epicentre was located 40 kilometres west of Christchurch and had a focal depth of 10 km, causing widespread damage which affected the whole of the South Island. No one died during this earthquake, but the buildings were severely damaged. On 26th December, there was another big aftershock but again with no loss of life. However, on 22nd February at 12:55 pm, there was a 6.3 magnitude aftershock centred near the Port of Lyttelton that devastated central Christchurch and killed 182 people, most in the central city district in relatively modern buildings. The severity of this quake was caused by the fact that its focal depth was only 5 km deep. It was the shallowness of the shake that caused the major wide-scale destruction. What was unexpected and caused major consternation among the gallery staff was that the Christchurch Art Gallery was third in line to be a Civil Defence hub should a disaster like this happen. This fact had never been communicated to the gallery staff. On arriving at the Gallery at 5:30 am to assess the impact on the collections and exhibitions, in September, it was with great confusion to find thousands of Civil Defence staff taking over the Gallery, including the exhibition spaces. New Zealand is known as “the shaky isles” because minor tremors are not uncommon. This unknown fault came as a complete surprise to earthquake experts around the country and overseas. Although the epicentre was in Lyttelton, the energy waves travelled along the mountain range, causing the most damage to the areas in the central business district. The amount of damage was dependent on the type of ground upon which the buildings were sitting. Soils such as sand or reclaimed land caused much more displacement. Liquefaction was a significant issue and occurred where there were water, sand and silt present. As Christchurch had many underground aquifers, copious liquefaction was extremely widespread across the city. Having formed the Canterbury Disaster Salvage Team in 1987 and producing annual workshops, and stressing the importance of preparation and awareness of possible threats to collections, it was horrifying to discover how ill-prepared, particularly the cultural institutions were despite regular training. After participating in many salvage operations during this time, it became apparent that it was because they had little time or money to develop their training or plans. For cultural heritage professionals in New Zealand, this event has proved to be a salutary lesson on what to expect should the very worst happen. Future disaster planning should take into account not just the normal disaster scenarios but also the ones that may not be immediately apparent, such as a museum being taken over by Civil Defence teams and government granting extended powers that have a severe impact on the safety of cultural heritage collections - such as happened to the art galleries and many public libraries in Canterbury.

***Change Starts in Our Own Corner: How to Build Resilience in Museums*****Goranka Horjan**

Etnographic Museum, Croatia

The lecture focuses on agile leadership and scenario planning as useful tools in times of crises. To find solutions on how to overcome difficulties and build resilience in new circumstances, we cannot repeat the usual models because they do not work for us anymore. Although it is easy for museums to think outside the box when searching for innovative approaches to audiences, many museum professionals still believe that the public awareness of museums' importance will stay high among social priorities despite the severe decrease in budgets allocated for museum work. Business as usual is heavily compromised, and the museum sector has to respond timely and in a proper way. Another challenge addressed in the lecture is related to everyday work and explores why it is difficult to make changes and why, when change is mentioned, everyone thinks that "the others" are those who need to change. "Change isn't about talking it's about doing." (Baldwin, 2020). It requires a different perspective, which might be self-critical; people have to step out of their business conformity and put extra efforts to employ new paradigms in work. It may merely mean that we have to detect weak points in our institutions and draft a resilience scenario. Are museum professionals capable of making a good to-do list for 2021? Besides the global pandemic, museums in Zagreb and its surroundings were also hit by devastating earthquakes, which made their position even more vulnerable. So how to encourage people at their workplace to come together and find feasible solutions? To do that, can we overcome the "tribal approach" and organise ourselves around tasks and not around friends at the workplace? How can we deal with "holy cows" in our business and set priorities of importance and urgency to address specific issues? Those questions may help us find answers and may be a good starting point for interesting discussions at the conference.

## *Clarifying Collections*

**Joachim Huber**

Prevart Ltd., Switzerland

Storages in cultural and historical institutions are clarification units for collections. Over time, their management results in a reflection of an institution's idea of cultural-historical significance. This evolution and perspective are different for every institution, every type of museum, every region and every society or group. Each institution will apply its own criteria and formulate its own collection strategy, determining why one object belongs in the collection, and others do not. An object's associated meta-information plays a central role and is at least as important as the artefact itself, establishing the object in its entirety, including the original and all later contexts, the history of the object, its previous owners, methods of manufacture, construction plans, and operating instructions. A collection is raised in profile by setting focal points, condensing and improving absolute and content-related qualities. A collection, therefore, does not necessarily have to grow over time but rather improve. It should by no means degenerate into a junk room of material cultural assets without a unifying concept. Museum collections are to be regarded as archives. They document cultural and historical conditions and developments, being a selection made from the wealth of incoming material. As in an archive, holdings must be reassessed routinely, condensed and, if necessary, released from the collection. To this end, a stringent collection strategy is indispensable as a changeable but nevertheless reliable guideline. The possibility of changing a collection is mandatory. The resources available in terms of space, money and personnel in everyday life of a museum are finite. Decisions have to be made; priorities have to be set; collections have to be constantly questioned and improved and - if necessary - reduced. An institutional framework for addressing the question of what will be relevant in a hundred years' time is necessary in this context. How shall we use the resources available for museum collections in a way that ensures an appropriate number of cultural and historical artefacts will survive and give future viewers a relevant picture of social conditions in different periods? The first step is also to document what cultural connotation a specific new entry to a collection has to the collecting institution/collector. This will help future generations understand the object's relevance to the collection. Let us collect the collector's intentions and understanding together with the collected item.

***Resilience Thinking for Integrating Disaster Risk Reduction  
and Climate Action in Heritage Management***

**Rohit Jigyasu**

ICCROM, Italy

Resilience is defined as “the capacity of a system to deal with change and continue to develop”, and therefore it broadly refers to the management of change in heritage places. In the context of disaster risk management of cultural heritage, resilience thinking implies proactively dealing with various risk scenarios and developing coping mechanisms to respond and recover from disasters. Therefore, rather than considering disaster risk management as a standalone plan, this new approach embeds it as part of integrated conservation and management of heritage sites by linking nature and culture in a broader territorial context for building their resilience. Such an approach also reinforces the link between catastrophic hazards and slow and cumulative ones that increase the vulnerability to disasters. Besides, it encompasses effective strategies for mitigation, adaptation and preparedness to address disaster risks and also recognizes the link between disasters and climate change by looking at ways of integrating climate change mitigation and adaptation strategies with disaster risk management of cultural heritage. The presentation will elaborate on this new approach and its implications on the capacity building of heritage professionals through the ICCROM’s new initiative under the World Heritage Leadership Programme on Understanding People, Nature, Culture: Heritage Management for Building Resilience of Living Traditional Settlements. It aims to guide heritage professionals and institutions to develop heritage management actions that take into account multiple hazards and risk factors related to disasters (including those resulting from climate change) from the larger natural setting, being able to solicit management solutions for risk mitigation, adaptation and preparedness for living settlements.

***Disaster Risk Management Through the Eyes of Local and Indigenous Heritage Institutions and Communities***

**Vesna Živković and Vicki-Anne Heikell**

Alexander Turnbull Library - National Library of New Zealand, New Zealand

A disaster management plan can be understood as a series of written policies and procedures that prevent or minimize damage resulting from disasters, tailored to a museum's or other cultural heritage institution-specific circumstances and facilities. The process of creating and implementing a plan is considered far more important and beneficial to the institution, and that the end result is not the plan itself but what is achieved through using and updating the plan. This aligns with a paradigm shift in disaster and emergency management related to how risks are framed, the main policy tools to deal with these risks, and the required knowledge, main actors and multilateral goals related to addressing these risks. It implies a transition from management agency as the primary actor towards wider and deeper stakeholder involvement, especially the private sector and local level actors. At-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means that people are at the heart of decision-making and implementation of disaster risk management activities. The paper will explore how local and indigenous communities' understanding of risk and cultural heritage, as well as their knowledge, values and practices, requires a shift in perception of cultural heritage disaster risk management. In this, the goal would be the implementation of Community Based Disaster Risk Management (CBDRM), a process, which leads to a strong and comprehensive, locally appropriate and locally "owned" strategy for disaster preparedness and response.

***Determining the Seismic Vulnerability of Collections and Implementing Programs to Mitigate Earthquake Damage***

**Jerry Charles Podany**

retired senior conservator J. Paul Getty Museum, USA

Because large destructive earthquakes are relatively rare occurrences, they are often considered unlikely threats to museum collections. However, when they do strike, the destruction can be catastrophic and, for collections, sometimes complete, particularly in areas of high seismic activity. Knowing and understanding the statistical risk to a region, surveying the earthquake vulnerability of the building and the collections, and then initiating an earthquake damage mitigation program is not only cost-effective in the long term but represents one of the major responsibilities of those entrusted with the care and preservation of works of art, historical artefacts, and scientific/cultural collections. At its core, it is the essence of preventive conservation. This presentation will provide a brief description of how to determine the likelihood of a seismic event and assess the seismic vulnerability of a collection and what actions can be taken to reduce and manage the risk and ultimate impact presented by earthquakes. Seismic resistance of buildings is both essential to life safety and an important preservation issue for historical structures. The research, developments, and the resulting guidelines in this area far exceed those for the contents of buildings (collections). Because of this lack of attention to safeguarding collections, this presentation will focus solely on assessing the seismic vulnerability of objects in collections and methods of mitigating earthquake damage. These methods are well within the capabilities of most museums and institutions.



***Presentation of the ProteCHT2save Project*****Marijana Mišerda Bajić**

City of Kaštela, Croatia

The City of Kaštela participates in ProteCHT2save (“Risk Assessment and Sustainable Protection of Cultural Heritage in Changing Weather and Adversity”), presenting cooperation between partners on natural and cultural resources for sustainable development in Central Europe. The main priority goal of the program is to improve the capacity for sustainable use of cultural heritage and time. Natural disasters pose and can pose risks to the preservation of cultural heritage with cultural-historical and artistic values and not only to cultural heritage but can jeopardize the safety of visitors, staff and the entire local community. The outcomes of the ProteCHT contribute to improving the capacities of the public and private sectors to mitigate the impact of climate change and natural hazards on cultural heritage. The project aims to develop implementation solutions for building cultural heritage resistance in the event of floods and the consequences of severe floods with the submitted solutions on how potential risks should be managed and how cultural heritage protection is implemented in the field. The project showed that in the field of culture, stronger cooperation is needed between cultural institutions and organizations that act in times of crisis (e.g. firefighters, civil protection, etc.) because cultural goods are not explicitly recognized or highlighted as a specific category in rescue plans. The lack of clear plans for the rescue of cultural goods in cultural institutions leads to the spontaneous throwing of exhibits in the event of a catastrophe, which later significantly complicates their rehabilitation and presentation. One of the reasons for this is the lack of spatial capacities for depositing damaged material, as well as the lack of expertise in handling it.

***Civil Society and Endangered Heritage: The 7 Most Endangered Programme*****Guy Clausse and Sneška Quaedvlieg-Mihailović**

Europa Nostra, Netherlands

Europa Nostra is the leading citizens' movement to protect and celebrate Europe's cultural and natural heritage; it forms a vast network of non-governmental and non-profit organisations representing millions of citizens from all over Europe. One of our core activities is campaigning for saving endangered heritage via our flagship programme for heritage at risk: the 7 Most Endangered Programme. Launched in 2013 in partnership with the European Investment Bank Institute and with the support of Creative Europe, the programme identifies endangered monuments and sites in Europe and mobilises public and private partners on a local, national and European level to find a viable future for those sites. By pinpointing the vulnerabilities of the sites selected via the 7 Most Endangered Programme, we contribute to raise awareness about their condition and act as a catalyst for joint action to save heritage treasures often threatened by human neglect or action, but also due to natural and climate change-related hazards. Currently, at its 6th edition, the 7 Most Endangered Programme has evolved throughout the years, including the possibility to offer further help to selected sites via a Heritage Grant and also by enforcing partnerships with international bodies dedicated to heritage at risk. The common ground in all Europa Nostra activities related to endangered heritage insists on creating a dialogue and promoting solidarity between citizens and countries to proactively protect our common heritage for the benefit of future generations.

***The Role of the Croatian Civil Protection Directorate in the Protection of Cultural Heritage/The Italian Experience and Its Contribution to the Union Civil Protection Mechanism in Reinforcing Cultural Heritage Protection Through the PROCULTHER Project***

**Sanda Milošević<sup>1</sup> and Veronica Piacentini<sup>2</sup>**

1 - Ministry of the Interior of the Republic of Croatia, Civil Protection Directorate, Croatia

2 - Italian Presidency of the Council of Ministers, Civil Protection Department, Italy

In the year 2019, the Civil Protection Directorate was merged with the Ministry of the Interior of the Republic of Croatia. At the EU level, cultural heritage protection is a relatively new sector within civil protection with an emphasis on risk reduction management.

Risk reduction includes prevention, risk assessment, action plan, standard operational plan, creating working groups, risk reduction measures, defining priorities and training; training to reduce risk, understanding the matter and its vulnerability, simulations with working group members, etc. These activities are well known, defined through various strategic and legal documents, but still insufficiently implemented through the obligations of the participants involved. Some of the European countries already defined the roles of participants (stakeholder cooperation) in the protection of cultural heritage, as well as the role of Civil Protection during emergencies. Their experience in this field and the outcome of their work is a multidisciplinary approach and cooperation of experts. It is important to recognize the activities that need to be carried out when it comes to upgrading risk reduction/prevention, preparedness and response in the area of protection of cultural heritage. Emergency management is certainly not a situation that happens according to the plan, but the previously mentioned actions will help define the vulnerability of matter and the strength of resilience.

Italy has made many efforts in the past decades to improve the emergency management of cultural heritage, paying particular attention to preparedness, prevention and response actions. Dedicated training courses were organized at all levels, as well as local, national and international exercises with specific scenarios dedicated to the protection of cultural heritage at risk of disaster in order to test specific procedures needed to ensure this type of response. In the meantime, the drafting of operative procedures specifically addressed to protecting vulnerable cultural heritage emerged as a result of a keen collaboration between the Italian Ministry for Cultural Heritage (MiBAC) and the National Civil Protection Department (DPC). During national emergencies, the DPC is in charge of setting up a national coordination structure for emergency management on site, that is, the Emergency Management Command and Control Center - DI.COMA.C. Within it, the 'Safeguarding Cultural Heritage Cell', constituted by the DPC and MiBAC representatives, can be activated as a reference facility at the central level in charge of monitoring and supporting all activities taking place in the affected areas. This Cell guarantees the involvement of the Regional Civil Protection Authorities, as well as all the bodies of reference, (Fire Fighters, Police forces, Army Forces, the Scientific Community, Religious Representatives and Civil Protection Voluntary associations specialized in the

conservation of cultural heritage property and assets). In this process of the constant evolution of operational and technical capacities aimed at reducing the risk of cultural heritage disasters, the combination of past experience and acquired competences of Italy, France, Spain, Turkey, ICCROM and Fondazione Villa Montesca has prompted the launch of the PROCULTHER project. Implemented within the framework of the Union Civil Protection Mechanism (UCPM) initiative and co-funded by the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO), the project aims to support and complement the efforts made by the European Union to strengthen the cooperation between the EU Member States and Participating States in this field. In this sense, the UCPM, by pooling together European civil protection capacities and capabilities and providing for common standards enabling certified and well-equipped teams to work interchangeably when a disaster strikes, is an essential and effective system to allow a stronger and more coherent collective response.

Under this framework, the project promotes the development of a common European methodology, tools and capacities to include the protection of cultural heritage in the disaster risk management cycle and to ensure a structured collaboration among Cultural heritage and Civil protection actors at local, national and European level.

## ***Emergency Preparedness Plans of Zagreb Museums in the Light of Zagreb Earthquake 2020 and Overview of Earthquake Damage in Museums Buildings***

**Ivana Krišto<sup>1</sup>, Josip Atalić<sup>2</sup> and Pavle Kalinić<sup>1</sup>**

1 - City Office of Emergency Management at City of Zagreb, Croatia

2 - University of Zagreb – Faculty of Civil Engineering, Croatia

Cultural heritage is a unique and irreplaceable view of one nation's history. Therefore, its vulnerability requires careful risk management planning. The types of risks to cultural heritage range from sudden and catastrophic events to gradual and cumulative processes. Risk management involves identifying, analysing, and prioritising as an ongoing process. Exchange of information, networking of stakeholders of different structures and systematic improvement are prerequisites for successful risk management. The Emergency Management Office of the City of Zagreb (OEM) has started activities aimed at protecting cultural heritage in 2018. The emphasis was on connecting participants within the civil protection system with representatives and professional services of Zagreb's museums and city administrative bodies. Thirty-three institutions have developed Emergency Preparedness Plans. In March 2020, a moderate earthquake struck Zagreb that caused significant damages to the museum buildings and the material stored. The paper presents the implemented and planned activities of the OEM in the protection of cultural heritage, the results of the analysis of received plans with an emphasis on the most significant problems that pose a potential risk in case of emergencies and proposals for their reduction. The paper also gives a short review of the damage assessments of the museums buildings after the earthquake.

## *Cultural Property Protection Inventories in Armed Conflict*

**Emma Cunliffe**

Newcastle University / The Blue Shield, UK

International law, and in particular the 1999 Second Protocol to the 1954 Hague Convention for the Protection of Cultural Property, recommends the use of inventories in conflict as a way to protect cultural property, although there is no legal obligation to do so. As a result, few states parties have created them, and their creation remains contested after a series of high-profile inventory abuses involving the targeting of listed CP in World War II (in Japan and England), Croatia, and elsewhere. Perhaps, as a result, scholarship and guidance have been limited. This paper will present new research by Blue Shield into the content and use of such inventories, demonstrating why the inventories that do exist today are sometimes inadequate to the needs of the population they serve (civilian and military). It builds on a foundation of international law, past practice, and the current requirements of armed forces based on military policy and experience from exercise support to NATO. I will also draw on recent examples from states practice, specifically the UK, to highlight the difficulties in representation and inclusion in current practice, arguing for new approaches. Bringing these together, my paper will offer cutting edge insight into the protection of heritage today – arguing for the essential collaboration between heritage professionals, Ministries of Culture, and armed forces.

### ***Risk Assessment of Indoor Spaces – Prevention of Negative Microclimatic, Natural and Anthropogenic Influences***

**Matijana Jergović, Ivana Hrga and Ivančica Kovaček**  
Andrija Štampar Teaching Institute of Public Health, Croatia

The existing organization of the Croatian network of public health institutes represents a strong partner for the stakeholders in the cultural sector during the ongoing climate change adaptation process and upgrade of their risk management system. Since health, according to the WHO definition, represents not merely the absence of disease or infirmity but a state of complete physical, mental and social well-being, prevention of negative impacts in our living and working environment represents the obligation of many diverse sectors. Climate change, extreme weather and climate events have significant implications for society and sustainable development. Strengthening the cooperation of the public health system with other stakeholders, especially in the area of negative environmental impacts monitoring and development of innovative IT products and processes to develop the early warning systems is one of the Sendai Framework for Disaster Risk Reduction 2015-2030 targets. Appropriate disaster risk management and adaptation to climate change can reduce exposure and vulnerability to weather and climate events and thus reduce disaster risk. Infrastructure maintenance, along with the continuous, but adjusted monitoring of physicochemical and biological factors in the indoor environment, in parallel with the use of information and communication technologies and the development of the new risk assessment tools, provide more focused risk assessment and risk management process. Also, intersectoral collaboration provides a more effective risk communication approach, results in a more resilient community and more efficient resource management, especially in case of emergencies.

*Of 'Virtues and Failings': Managing Culture in a Crisis*

**Graham Bell**

Europa Nostra, Netherlands

Nikola Tesla said, 'Our virtues and our failings are inseparable, like force and matter. When they separate, man is no more.' There is nothing like a crisis for testing this truth under pressure. For in our humanity, both are present: virtue to overcome – motivated by a greater good – but also exposure to material weakness. Virtue bridges between compromised reality and inspiring, enduring spirit. Earthquakes and other catastrophes are a disruptive collision of force and matter, but capturing the embodied energy of a crisis to realign force (mindset, expertise, societal behaviour) WITH matter (place, infrastructure, resources) transforms crisis into a catalyst. Schwab's Fourth Industrial Revolution tells how we have fewer constraints and freer access to understanding than at any point in history. Our ability to anticipate, model and manage scenarios should be a virtue; our failing is that, especially in the cultural heritage world, we are by nature conservative, not entrepreneurial – not natural risk managers. When a crisis comes, and the normally harmonious relationship between force and matter is shaken, we temporarily lose our orientation, our humanity – for a moment, 'man is no more'. This presentation is about cultural continuity before, during and after a crisis, whether expected, unexpected or even planned (such as climate action). It is not about the emergency services or disaster plans but about maintaining virtue as the lifeline during the metamorphosis of matter experiencing change. It is about us all emerging 'inseparable'.



## ***The Challenges of Creating a Professional Framework for the Protection of Movable Cultural Heritage in Emergency Situation - Serbia Case Study***

**Natalija Ćosić<sup>1</sup> and Marija Radin<sup>2</sup>**

1 - independent senior preventive conservator

2 - Central Institute for Conservation, Serbia

Cultural institutions in Serbia are currently not obliged to create an Emergency response plan for cultural heritage. The legal framework recognizes the Emergency response plan, which is focused exclusively on saving lives and material properties and is compiled by private companies accredited for risk assessment. This document is based on a public methodology for risk assessment, which uses a general approach and is not suited for specific requirements of cultural heritage protection. Aiming to overcome the current “invisibility” of cultural heritage in the emergency response sphere and to provide the professional community with resources for creating a Plan which acknowledges specifics of protection of cultural heritage, the team of the Central Institute for Conservation is publishing professional guidelines for the protection of movable cultural heritage in emergency situations. This article aims to present all the challenges the authors had to face while working on these Guidelines. The working process included reconciliation of diverse intersectoral approaches, harmonization of national and international frameworks and revelation of flaws of the current emergency response strategies. Moreover, the article also presents gained insights and planned steps as a contribution to creating a functional and unified strategy for the protection of cultural heritage in emergency situations in Serbia.

***Crisis? Let's Digitize! (How the Crisis Situation Affected the Process of Digitization in a Museum)***

**Jelena Balog Vojak and Maja Mladinov**

Croatian History Museum, Croatia

In the spring of 2020, the Croatian History Museum faced a complex crisis caused by the SARS — CoV-2 virus pandemic and a strong earthquake that hit Zagreb on 22 March 2020. As a result of these events, the Croatian History Museum is now closed to the public until further notice and is forced to find new modes of communication with users to fulfil its purpose and mission. Bearing in mind the existing project experiences, this new situation instigated the improvement of the process of digitization of museum and library materials. Thus, the projects “Memories of the 20th Century” and “Digitization and Publication of the Croatian History Museum’s Inaccessible Publications” have shown the long-term importance of the digitization of cultural heritage. These projects aimed to make museum materials and part of the library collection available to the general public while protecting the originals. This presentation aims to familiarize the professional and general public with the importance of these projects as a kind of guideline for improving and developing the digitization process within the Croatian History Museum as a heritage institution. Experiences of these projects can serve the Croatian History Museum and other heritage institutions as some kind of initial model of digitization in the period of crisis through which Croatian heritage and cultural institutions are going through.

***Integration of Public Art Into Disaster Risk Management:  
Challenges and Opportunities***

**Marta Gómez Ubierna**  
University of Florence, Italy

This research explores how the integration of public-art collections into general risk-management frameworks can contribute to disaster risk reduction (DRM) in historic urban centres. The research outlines the key elements of a public-art risk management plan. Emphasis is placed on enhancing heritage protection from natural hazards and extreme events related to climate change and, more significantly, how such a plan can strengthen resilience in the social and historic built environment. The World Heritage Historic Center of San Gimignano (Italy), comprising both medieval heritage and contemporary public art, is investigated because of its unique cultural landscape. The landscape's contemporary elements exist as the result of several cultural initiatives: Affinità Elettive (1994), Arte all'Arte (1998-2005), and UmoCA (2011). This research highlights how the ensured survival of San Gimignano's public art is severely conditioned by the coexistence of physical, contextual, and managerial factors. The integration of public art into, and its contribution to, general DRM frameworks is discussed using an analysis of the multidimensional values associated with risk reduction. The research reveals new challenges to overcome if public art's values are to be incorporated into general risk-management policies.

***Assessing, Preventing and Reducing Risks - the Importance of  
a Long-Term Systematic Approach***

**Valentina Ljubić Tobisch<sup>1</sup> and Mirta Pavić<sup>2</sup>**

1 - freelancer, Croatia

2 - Museum of Contemporary Art, Croatia

When it comes to the protection of objects, and in particular following natural disasters, object-adapted displays in exhibition rooms and showcases play a significant role. In combination with this, the right choice of building technology, materials and storage systems– as well as the correct application of these elements – can make an enormous contribution. Heritage collections require the development of suitable and affordable solutions for the preservation of the majority of objects and the development of special solutions for the most endangered objects with special needs. Numerous guidelines for a healthy environment with extensive information on optimal technical and climatic conditions based on both scientific research and the personal experience of experts have been developed for many years. Decisive for long-term preservation are also regular maintenance, personal care and our sense of responsibility for the cultural assets. The specific aspects of object behaviour - single, in homogeneous or in heterogeneous object groups - should be considered in the development of individual, risk-reducing strategies for small and large museum institutions. Against the background of the devastating damage caused by the March 2020 earthquake to the cultural heritage in Zagreb, Croatia, the International Institute for Conservation of Historic and Artistic Works IIC-Croatian Group conducted a national survey called RIZIK. The survey aimed to collect comprehensive data on the preparedness of Croatian cultural organizations for various risks. The survey results will be used as a basis for further study, development and work on improving the risk prevention system, especially in endangered areas.

***Academic and Special Libraries in Croatia and Their Crisis Preparedness*****Jelena Duh, Aleksandra Pikić and Lucija Ašler**

National and University Library in Zagreb, Croatia

The majority of academic and special libraries in Croatia are not standalone institutions: they are an integral part of other institutions or organisations, making their freedom in establishing crisis management principles limited. These libraries are specific in their organisation, users and collections, and a significant part of them holds valuable heritage collections of old and rare books. This research aims to assess the state of crisis preparedness, management and potentials of crisis response in academic and special libraries in Croatia. A twofold methodology will be used for this research. Data will be collected through a questionnaire and in situ applying regular professional supervision that the National and University Library conducts in these libraries. The online questionnaire will be sent to all Croatian academic and special libraries. The questionnaire includes questions about risk assessments, state of crisis management, current experience and education of the staff, as well as levels of crisis preparedness and that of crisis occurrences. Potentials of crisis response and cooperation will be estimated. In situ supervisions include collecting data on collection storage, state of safety measures and overall risk preparedness assessment. Since a significant percentage of Croatian academic and special libraries is located in Zagreb, an emphasis was done on recent disasters (earthquake and floods in 2020) and how libraries responded to them. Collected data will serve as a good basis for planning and organising collective education and targeted actions in improving heritage preservation at risk.

***Earthquake and the Pandemic on Top of Old Problems –  
Work of the Croatian History Museum After the Zagreb Earthquake  
of March 2020 and During the COVID-19 Pandemic***

**Mislav Barić**

Croatian History Museum, Croatia

The work of the museum employees of the Croatian History Museum during crisis situations was based on the experience of functioning during the Homeland War. With the experience from this critical period, encouraged by the Office of Emergency Management to update the plan for working in crisis situations, the Museum decided to create a plan even before the COVID-19 pandemic. The same plan was used as the basis for developing team and remote work when on top of the global coronavirus crisis, the City of Zagreb and its surrounding counties were hit by an earthquake of 5.5 magnitudes by the Richter scale. These two consecutive crises resulted in organizing the work of museum workers not just to abide by the social distancing rules but also to secure the Vojković-Oršić-Kulmer-Rauch Palace and the museum objects in it from being damaged. The plan of evacuation and functioning during a crisis, which was developed in advance, helped immensely, with meticulous attention to anticipating all forms of catastrophes, the division into teams, description of evacuation and necessary equipment. However, it needed to be adapted to the prescribed conditions of functioning during the COVID-19 pandemic. The Museum turned completely to functioning digitally with museum employees working remotely. What does this mean for a museum in a historical building, without a permanent exhibition, the ability to be open to the public and the care of museum objects without adequate conditions?

***Precautious Steps in Preventing and Protecting Old Books Collection Items*****Irena Galić Bešker**

National and University Library in Zagreb, Croatia

Crisis or disasters are not the only opportunities for theft or illicit trafficking, although they can stimulate these activities. Besides the librarian's control over items and the whole collection and well-built repositories and well-equipped reading-rooms, there are also several procedures that can help prevent theft or illicit trafficking. First of all, it is important to identify and describe the collection and subcollection and particular items in them and store data. Local inventories, catalogues, registers etc., are useful regarding the oldest items of the Manuscripts and Rare Books Collection. Detailed item description made of general, internationally accepted elements and filled with local details will also be useful for librarians in any process of protecting, identifying and eventually recovering stolen items. Bibliographic fingerprints could also be helpful in the process of identification when internationally accepted. Collected in a unique database, bibliographic fingerprints would be more helpful. The proper signification of an item also contributes to preventing theft and illegal trafficking afterwards.

Careful storing and manipulating particular items in the everyday working process are important as well. Furthermore, careful examination and checking of items to be acquired for library collection are also desirable. Presumably, once stolen items could be offered to the library for purchase, and such a possibility should be avoided. The legislation is also important, as well as close cooperation with the cultural and civil sector (police officers, inspectors and criminalists).

### *Rebuilding Libraries in Time of Overlapping Crisis*

**Irena Šimić<sup>1</sup>, Lina Šojat<sup>1</sup>, Magdalena Blažić<sup>2</sup> and Filip Kartelo<sup>2</sup>**

1 - Institute of Art History, Croatia

2 - University of Zagreb - Faculty of Humanities and Social Sciences, Croatia

The presentation will give an overview of the processes of rebuilding valuable library collection at the Institute of Art History in Zagreb due to overlapping crises during 2020 (earthquake, epidemic, flood), which gave us the perspective to understand crisis as a catalyst for collaboration and change. One of the objectives is the overall Library collection that has completely collapsed due to the massive earthquake in March, which needed to be resystematized according to the UDC system (from scratch). This overlapping with primary care and conservation procedure has taken on the personal archival paper collection of Grgo Gamulin, art historian and art critic, and unexpected urgent need of establishing personal archive and ex libris of our honoured colleague Academician Tonko Maroević, sincerely and truly expanded all of our capacities. These overall specific conditions led us to create new models of collaboration between colleagues, especially with our valuable students and volunteers, that has a significant long-term impact on rethinking our working practices and workforce development.



***The European Solidarity Corps in the Restoration of Cultural Heritage in Post-Crisis Situations - the Basilica of St Benedict in Norcia***

**Antonija Ujević**

University of Split - Faculty of Humanities and Social Sciences, Croatia

The author presents one of the ways to protect cultural heritage in post-crisis situations. On 7 December 2016, the European Union launched the European Solidarity Corps initiative, which started in June 2017 and is funded by eight different European Union programmes. The underlying concept of the initiative is the solidarity of young people (members of the Member States) and their participation in solidarity activities which contribute to solving social and other problems; therefore, it enables the inclusion of young people in the labour market and society. The paper presents an example of the city of Norcia in Italy affected by earthquakes three times; on 24 August and 30 October 2016. A magnitude-6.6 earthquake, which occurred on 30 October 2016, virtually destroyed the Basilica of St. Benedict in Norcia. The restoration project of the Basilica of Norcia damaged by the earthquake of 2016 was implemented by the European Solidarity Corps initiative. The project involved 16 young volunteers from Austria, the Czech Republic, France, Hungary, Portugal and Spain under the leadership of the Italian organisation Kora. The restoration of the basilica was overseen by the former director of the Vatican Museums, Antonio Paolucci. Despite bureaucratic disagreements between the then Archbishop Boccad, who advocated the restoration of the basilica in a modern architectural style and the local population who wanted to restore the basilica to its original appearance, the basilica was restored in 2020 by incorporating modern aspects and techniques into the original structure in order to make the basilica more resilient to earthquakes frequent in Italy.

***Between Social Needs and Heritage Safeguard - Examples of Solidarity and Cooperation During the COVID-19 Crisis***

**Inês Costa**

Faculdade de Letras da Universidade do Porto, Portugal

In the last decades, the factors that threaten cultural properties have been exponentially increasing following the extent of climate change, natural disasters, armed conflicts, and even financial crisis. In 2020, the ongoing Covid-19 pandemic created a global impasse that prejudice all sectors, including thousands of cultural sites and institutions that were confronted with fewer and fewer funding sources. Such an unstable juncture will, and is already, result in unprecedented socioeconomic pressures, which, in some cases, will force governments to focus on the basic needs of society, putting heritage safeguard on hold. Considering the previous premises, we propose an analysis of some examples of cooperation between Portuguese cultural institutions and their local communities. This approach, based on the identification, study, and critical reflection about some of the actions and measures implemented by these organizations, may be of extreme importance to understand the power of solidarity and collaboration in overcoming serious periods of contingency. It can also be a significant turning point to rethink the function, management, protection, sustainability, and social involvement of these institutions. Furthermore, the identification, reflection, discussion, and registration of the current strategies can prove useful in future periods of crisis. At long last, the year 2020 and the Portuguese context will be the spotlight of the research.

***A Whirl of Solidarity of IIC – Croatian Group in 2020/2021  
(Regional Group of International Institute for Conservation IIC)***

**Žana Matulić Bilač**  
IIC-Croatian Group, Croatia

The legal status of the IIC - Croatian Group allows flexibility, but 2020 has put rapid and effective adapting to the test, as everywhere in the world. Additionally, in the icy dawn of March 22, the city of Zagreb experienced a destructive earthquake. Although in the 1st risk zone, it was not prepared and was engulfed by a panic of chain reactions. For a time, the entire paralysed city functioned through volunteer initiatives and emergency city services. Politics immediately penetrated the very foundations of visions for renewal, and by postponing the passage of a Reconstruction Act, it made the city its hostage. Gradually, the anaesthetised institutions of a system already burdened with the cumbersome procedure and unready to take risks began to awake and became operational. The Electoral Assembly of the IIC - Croatian Group voted on a new mandate and work plan in March, but after the earthquake, this was put aside, and the members dived into a whirlwind of solidarity in which they are still circulating with undiminished intensity. The power of the solidarity put in place for Zagreb reached member activities everywhere, but in Zagreb, it was bolstered by a volunteer project of heritage experts, the first in Croatia. Multidisciplinary, open and almost without funding - the association has had its most challenging year. Concluding the anniversary of the mandate and the earthquake, we realised that our model provides many experiences and insights to be shared and potentially partially implemented in heritage care in Croatia. In the lecture, this concept will be argued through itemised and explained specific activities such as creating research forms, flyers and questionnaires, writing announcements and reviews, organising presentations, donations, documenting historic facades, etc.

***Earthquake Consequences and Solidarity Volunteering in the Glyptothèque of the Croatian Academy of Sciences and Arts***

**Magdalena Getaldić**

Croatian Academy of Sciences and Arts – Glyptothèque, Croatia

The Glyptothèque of the Croatian Academy of Sciences and Arts is a museum of sculpture and a unique institution in the Republic of Croatia that mainly collects plaster models of eminent Croatian sculptors and plaster casts of national heritage from the antique to the Renaissance. The museum is located in the former industrial building of tannery, and it is the first example of the conversion of industrial architecture for cultural purposes. Due to a strong earthquake on 22 March - 5.5 on the Richter scale, our museum was severely damaged, especially our collections. As being the biggest sculpture museum located in an industrial complex, it was challenging to manage and react quickly in the sense of heritage protection. Unfortunately, numerous museum objects were damaged, a large number of sketches, portraits of plaster models, sculptures, by established Croatian artists who entrusted Croatian sculpture with their artistic work and thus positioned it as part of European art. Three hundred and forty-eight holdings of unique plaster models of Croatian sculpture and plaster casts were damaged or destroyed. From the very beginning, the staff of the Glyptothèque worked on packing the fragments, securing and preventing further damage to museum objects damaged in the earthquake. It will take great efforts and financial resources to restore the damage to those objects and rebuild damaged buildings. The professional staff of the Glyptothèque worked together with the volunteers - professional restorers, who kindly helped us make detailed documentation of the current condition of the damaged sculptures. We are truly grateful for the solidarity and support that the individual institutions have expressed. This earthquake showed in our example that solidarity and care for heritage go hand in hand and that we have a big job ahead of us to make sure that something like this does not happen again.

***An Indigenous Education Policy as the Panacea for Promotion of Africa's Cultural Heritages: The Nigeria's Case Study***

**Oni Oluwafemi**

CITCC Nigeria Limited / Department of General Studies, Nigeria

Education is the process by which any society through schools, colleges, universities and other institutions deliberately transmits its heritage, that is, its accumulated knowledge, values and skills from one generation to another. In pre-colonial times, education in Nigeria, although imparted through informal means, was very rich, and teachers were very dedicated. The feet of the elders formed the classrooms, and pupils were initiated into life and living majorly through proverbs and wise sayings that centred on African cultural heritages. Education during the pre-colonial period up to the 1970s could be said to be organized. Unfortunately, from the 1980s until the present, Nigeria has witnessed the desecration of education. It is unfortunate that our schools are still operating on a curriculum thrust at it by the British imperialists. A cursory look at our educational policy reflects the imprints of the British imperialists. The analogies used in Geography to Economics to Philosophy are reflective of the imprints of the British imperialists. Does this mean that our progenitors did not contribute anything to the development of Geography, Economics, etc.? Why are the examples majorly drawn from the Western nations? Worth mentioning is that education sparks interest in tourism. Nigerians were desperate to travel to Jerusalem because they read about it in the Holy Bible. The same goes for the Holy Quran. Where is the Holy Book that markets our cultural heritages to the world? Even coming generations are gradually not getting acquainted with our cultural heritages. No thanks to our government that phased out the study of history from our schools. Also to be apportioned blames is our eggheads that daily argue that there is nothing like African philosophy. Now researchers on Africa's cultural heritages have to rely on what the Western world says about Africa, and unfortunately, they refer to our cultural heritages as fetish, diabolical and evil! It is a popular saying that "one cannot give what he does not have". Who will want to visit an 'Ifa' shrine that has been depicted as evil, or who will want to waste their hard-earned money on visiting artefacts that have been labelled as having the potentials of jinxing its viewers? These problems affecting the nation's education sector are serious when we take into consideration the fact that government regulations guiding the education sector are mechanical guidelines, entirely lacking in a sound philosophical footing. School curricula are lacking in content. It is no gainsaying that the contemporary Nigerian environment is thus ill-equipped to prepare children qualitatively to appreciate the strange flora and fauna that providence has blessed her with. Already, the nation has begun to witness the effect of this situation, which includes capital flights to develop tourism in other countries.

***Research Activities in the Pandemic Era: Limitations and Potentials*****Ivan Kokeza**

Independent researcher, Croatia

The health crisis of 2020 suspended or at least partially altered most of the scientific and professional activities that were taking place at various cultural institutions around the world. Lectures, conferences, exhibition openings, book presentations and other similar events were mostly cancelled, postponed or held online. The number of direct social contacts has thus significantly been reduced, as opposed to the increasingly prevalent online interaction. Archival research has also been suspended or conducted using digitized and usually publicly available formats. The current coronavirus-induced pandemic has thus spurred the emergence, and in some places accelerated, the spread of more significant research networking. As part of the lecture, the limitations and possibilities of digital working methods are discussed. The advantages and disadvantages of web conferencing, live streaming, video calling, studying materials in digital form and working from home in general are questioned. Simultaneously, special emphasis is placed on the psychological and social challenges faced by contemporary researchers at various cultural institutions (from libraries and archives to galleries and museums). Finally, within the conclusion, the role of the contemporary researcher is evaluated in the light of future social relations and further popularization of new technologies.

***Teaching Risk Identification Through Real-World Examples:  
Risk Assessment as a Preventive Conservation Tool*****Sagita Mirjam Sunara**

University of Split - Arts Academy, Croatia

This talk will present a problem-based learning exercise related to risk identification and mitigation, developed as a part of a preventive conservation course taught at the integrated undergraduate and graduate program of study in Conservation-Restoration at the Arts Academy in Split. The exercise considered all risks, not just those related to disasters. Three sculptures from Sisak Steelworks Sculpture Park were used as case studies. First, students were provided with photographs of the sculptures. One sculpture is sited near a road, one is in the middle of a park, and the third one is in a housing estate. Students were asked to produce a written report explaining which threats each sculpture is exposed to, how damage can occur, what measures can be taken to prevent the damage, and which people and/or services can help integrate the measures proposed. After they had read each other's reports, each student was assigned one sculpture and asked to write risk scenarios for the ten agents of deterioration for that particular object. The risk scenarios had to be extracted (and, if necessary, amended or expanded) from the students' reports.

***Protecting the Cultural Heritage of Cochin Using Artificial Intelligence*****Anjali Antony**

CHRIST (Deemed to be University), India

Cultural heritage is an inevitable part of our humanity, and an understanding of these unique heritages located across the globe sheds light on our past, which in turn aids in developing an understanding of our future. Protection of CH is becoming increasingly important in our contemporary world, where we are facing challenges from multiple fronts to preserve them in times of crisis. A radical shift from a society characterized by the Industrial Revolution to Information Technology has brought about tremendous changes, and everything we see around is rapidly being digitized. One can witness how Artificial Intelligence and Machine Learning have come to the forefront and influence our everyday life and decision making. Considering the contributions AI has made in other vital disciplines, if employed in the correct manner, AI can contribute to preserving CH in times of crisis. To depict the possibilities of this multidisciplinary area of research, the geographical space of Cochin, located in India, is taken as an experimental ground. The cultural impact of ancient trade, colonial rulers and migrant communities is evident in almost all spheres of life in Cochin. The place underwent a massive cultural crisis in the past and is still battling a crisis when it comes to maintaining the cultural heritage of the town. This research article analyses the CH crisis Cochin is currently facing by highlighting the tangible CH - the buildings located in various parts of the town - which carries with it the historical and cultural trace of the place, and the intangible CH crisis is analyzed through the dying customs, practices and languages of the 37 ethnic communities residing in Cochin. Thus, this paper aims to analyze the profound ways AI can be put to use to preserve the CH of Cochin, which is in crisis.

***S.O.S. for Vernacular (Traditional) Built Heritage in Croatia***

**Sanja Lončar**

University of Zagreb – Faculty of Humanities and Social Sciences, Croatia

The author discusses the issues of preservation and protection of the vernacular (traditional) built heritage in Croatia. The focus is on wooden architecture that is still numerous and presents an important element of the identity of the space of Central Croatia. However, it presents endangered heritage neglected in terms of systematic research and documentation, national and local policies and funding programs, representation in the National Register of Cultural goods, etc. In recent decades, traditional wooden architecture has been exposed to theft and illicit trafficking because of the high values of its building material. Moreover, the overall environment of this heritage has been changing due to the depopulation, deforestation and gradual abandonment of rural settlements. The existing system of preservation and protection of cultural heritage and approaches have not been satisfactory. On the contrary, they have helped to maintain a permanent crisis for this heritage. The author advocates a strategic approach on the national and regional level that would take into account the values and specifics of vernacular (traditional) built heritage as a national resource and international recommendations for its preservation and safeguarding.



## ***Ceramics - a Part of Architecture: Simple Handicrafts - an Issue for the Cultural Heritage***

**Kristina Kojan Goluža and Vasilija Todorović**

IIC - Croatian Group, Croatia

Dubrovnik and Zagreb have suffered several crises during recent decades: the Homeland War, earthquakes, and COVID 19. With this paper, the authors would like to present the problem of Dubrovnik roofing tiles facing the same issue as masonry bricks research in Zagreb. Once simple handwork, which got lost, became an issue for the heritage scientists. In the beginning, the project aimed to raise the awareness of the public and conservation community regarding the evident technical and esthetic differences between the historical and recent roof tiles Kanalica in Dubrovnik. This town forms, in fact, a prominent example for many other cases in European historical cities and towns where modern industrial ceramic roof tiles are strongly mismatching the principles of architectural heritage preservation and visual integrity of historical cities, which, in fact, created a foundation of our economy, i.e. tourism. Thus, several meetings were held with the Austrian Federal Office of Monuments Preservation (BDA) in order to communicate and exchange experiences and results. Through a number of round tables and workshops (Dubrovnik and Vienna), the relevant institutions were encouraged to start developing strategies for the protection and use of historic roof tiles as an important part of cultural heritage. This research is developing towards industrial production of historic Kanalica accurate in every detail. With the knowledge of many handicrafts, crisis management could address the forms of the mechanism of detailed documentation of the cultural heritage in all, considering the issues on local and state governmental levels.

*Heritage Conservation in Post-War Conditions: Dubrovnik Research Library***Tina Di Reda, Damjan Polić and Paula Raguž**

Dubrovnik Libraries, Croatia

This paper will address the protection of three valuable collections in Dubrovnik libraries in the summer of 1992 after significant war damage to the library building. The topic will be discussed from the point of view of both librarians and conservators. There will be an overview of the heritage library collections in the Dubrovnik libraries in the librarian section. The author will present the systems and methods (which include library employees, other institutions who helped in various ways and work organization) of protecting and transporting the very valuable Collection of Old and Rare Books (which consists of three separate collections of 16th to 19th-century books) in the Research Library of Dubrovnik during and after the war in Croatia. When the war started, the books were transported to the Dubrovnik Bank vault, and in 1998 the collections were brought back to the damaged palace Skočibuha for temporary storage until they were transported to their current location in the Old Town. In the conservators' section, the paper will further include the description of the storage place and a summary with the review of all preventive conservation activities conducted back in 1998, and compare it to the environment and conditions in the new building where the same collections are kept to this day.

***Emergency Evacuation of Krsto Hegedušić Gallery in Petrinja*****Dunja Nekić<sup>1</sup>, Iva Validžija<sup>2</sup> and Dunja Vranešević<sup>2</sup>****1 - Museum of Arts and Crafts Zagreb, Croatia****2 - Museum Documentation Center, Croatia**

At the very end of pandemic 2020, after the spring earthquake that hit the capital of Croatia, leaving Zagreb's museums to cope with the structural damages of the historical buildings in which most museums are situated, along with significant damage on museums items, we all believed that all dire circumstances of 2020 were behind us. Unfortunately, on 29 December, an even more devastating 6.4-magnitude earthquake hit Sisak – Moslavina County, leaving the towns of Petrinja, Sisak and Glina with surrounding villages in ruins. This presentation aims to show the timeline of evacuating museum objects of Krsto Hegedušić Gallery in Petrinja, with all the professional guidelines and steps that were undertaken in the period from 7 to 14 January 2021. The Ministry of Culture and Media, along with the local Conservation Department, formed an expert team of curators, museum technicians, documentalists and restorers, which undertook the process of evacuation and safe housing of museum objects in the nearby Sisak City Museum. The evacuation took place on 7 January with the help of the Croatian Mountain Rescue Service because Gallery Krsto Hegedušić has red tag notification due to considerable structural damage to the building. Upon transporting all the museum objects in the Sisak City Museum, each one was in found in the Collection Management Software according to the existing ID number (or if not - it was given a temporary identification number), possible damage was identified and documented, and every item was wrapped in either Tyvek, bubble wrap or other material. All the objects from Krsto Hegedušić Gallery were placed on metal shelves in cardboard boxes, and their locations with ID reference were noted down in the documentation that was kept during the process of evacuation and storage. This presentation aims to help all museum professionals in the process of necessary evacuation or reorganizing museum depots.

## ***The Importance of an Integrating Framework for Protection of Library Resources From Disaster Risks***

**Dragica Krstić and Breza Šalamon-Cindori**

National and University Library in Zagreb, Croatia

Cultural heritage institutions (libraries, archives, museums) face a variety of disasters every year. Reducing their occurrence and their impact on buildings and collections contributes to strengthening resilience and, consequently, to sustainable development. While a great range of risk-reduction measures exists, not all of them are appropriate for cultural heritage due to their potentially negative effects on property values. The paper examines relevant frameworks, including policies, legislation and organizational arrangements, identifies and discusses the various gaps relating to the protection of cultural heritage with a special focus on library resources, conservation and safety standards. This paper points to the importance of establishing a policy and institutional framework that would define the roles and responsibilities of the different sectors and institutions in Croatia in charge of matters related to disaster risk reduction as a part of sustainable development. Since disasters do not only cause material damage but also put the lives of users, visitors, staff and local communities in and around institutions at risk, the paper emphasizes the role of cultural heritage institutions in developing a multi-sectoral strategy for disaster resilience.

## ***Traditional Crafts and Trades in the Restoration of Cultural Heritage***

**Ivana Sambolić**

IIC - Croatian Group, Croatia

Traditional crafts and trades are, in most cases, deficient occupations and skills that are slowly losing their place in the economy due to mass market production. The uncertainty of future employment in traditional crafts and reduced demand for the products of various traditional trades have made them less attractive and motivating for young students when they choose further education, which may lead to the complete disappearance of certain traditional crafts in Croatia. As a country with a rich cultural tradition and numerous valuable monuments of cultural heritage, it is certainly a priority to preserve the knowledge and occupations used to create this heritage, and they are certainly needed during its conservation and restoration. The recent earthquake, which caused the most significant damage to the historic buildings in the centre of Zagreb, showed how important and necessary it is to have professional craftsmen trained in traditional crafts. This lecture will provide insight into certain traditional crafts and trades that are necessary for the restoration of cultural heritage, present obstacles and exacerbating circumstances that prevent their propulsion on the labour market, and potentials for their successful development, which include passing down traditional craft techniques, methods and knowledge to future generations.

## ***Solidarity in Action – Saving Written Heritage From Vukovar Municipal Museum***

**Đuro Singer and Dragica Krstić**

National and University Library in Zagreb, Croatia

In the days following the 1991 Vukovar Battle, faced with extensive destruction of the city, local people reacted by rescuing the library and wide range of documentary materials belonging to the Vukovar Municipal Museum and moved them to safer but inadequate places such as basements with poor environmental conditions. Most of these materials suffered extensive damage. After the armed conflict, the library and archive materials arrived at the National and University Library in Zagreb in 1997. There, the librarians and conservators have been taking care of them until this year. All these materials were returned to the Vukovar Municipal Museum in February 2020. The Museum is now located in the renewed and reconstructed Eltz Manor, and the materials are finally available to the public. This presentation is about solidarity in action where it is most needed, as was the case with the written heritage from the Museum in Vukovar endangered by destruction and looting in armed conflicts. It will also provide an overview of the conservation-restoration procedures and preventive measures taken to ensure the the longevity of the materials.

## ***Croatian Group Research Forms Aimed at Improving the Earthquake Protection System***

**Jelena Ćurić<sup>1</sup>, Mirta Pavić<sup>2</sup>, Jasna Širec<sup>3</sup> and Jerry Charles Podany<sup>4</sup>**

1 – IIC - Croatian group, Croatia

2 - Museum of Contemporary Art, Croatia

3 - independent, Croatia

4 - retired senior conservator/J. Paul Getty Museum, USA

The earthquake that struck Zagreb in March 2020 affected many institutions. It caused significant damage to its architecture, religious objects, museum holdings and a wide range of other movable cultural property. The IIC - Croatian Group, a professional association and branch of the International Institute for Conservation of Historic and Artistic Works, designed and distributed, in cooperation with the Ministry of Culture and Media, forms intended to collect data on the causes and consequences of earthquake damage. The information gleaned from the forms sent to the Zagreb institutions will provide an overview of the extent of damage to the artworks and, most importantly, clarify the specific causes. In turn, this information will help to improve exhibition and storage methods, ultimately averting many of the consequences of disasters such as earthquakes. Previous installations of artworks are analysed, in an attempt to understand how objects responded to the ground shaking and moving during the earthquake and how that movement caused damage. The results of the completed surveys will be statistically processed and analysed, with the dominant focus on the specific causes of earthquake damage. This presentation explains the reasons for the damage and draws statistical conclusions obtained by processing the data. The forms were created in collaboration with Jerry Podany, a conservator specialising in earthquake damage mitigation, to improve the manner of protecting cultural heritage from the effects of natural disasters. The first part of the presentation examines general issues, indicated by the damage observed on the objects and recorded as such, whereas the second part focuses on statistical conclusions and possible recommendations.

*Lost Unities*

**James Lowry<sup>1</sup> and Forget Chaterera-Zambuko<sup>2</sup>**

1 - City University of New York, USA

2 - National University of Science and Technology, Zimbabwe

Bonfires burned across the Empire as the British retreated in the face of resistance to imperial rule. Records were going up in flames. Other records were submerged in lakes. Others were airlifted out and sent to Britain. From what remained, the newly independent countries stitched together their national archival heritage. Archivists across the Commonwealth have been asking for the return of these records for decades. For example, since 1969, archivists from across eastern and southern Africa have been passing resolutions requesting the return of these records. All requests have been met by the British state with silence, denial or obfuscation. In 2011, legal proceedings brought the Foreign and Commonwealth Office's "Migrated Archive" to light. Formed of records removed from 37 former dependencies, the Migrated Archive is now at the UK National Archives (series FCO141). In 2017, members of the Association of Commonwealth Archivists and Records Managers voted unanimously to adopt a position paper calling on the UK government to repatriate the records. There are precedents for repatriation in international law and professional codes of ethics, and while the Dutch National Archives has begun returning colonial records to the places of their creation, the UK government ignores the call to restorative justice. In this historical moment, as statues of slavers fall and the cultural heritage sector is alive with talk of restitution, there is silence around the Migrated Archive. *Lost Unities* is a virtual exhibition that repeats and makes visible the demands for repatriation. Taking its name from Henri Lefebvre's catalogue of absence, *Lost Unities* alludes to notions of archival wholeness and organicity, lost in the violence of displacement.

## ***Centre for Continuing Education of Librarians in Croatia: Providing Support in Knowledge Dissemination about Heritage Protection***

**Antonija Filipeti**

National and University Library in Zagreb, Croatia

The national Centre for Continuing Education of Librarians (CSSU) conducts lifelong learning programmes for librarians from all types of libraries and the vast community of specialists from heritage institutions – museums and archives. Since 2002 the Centre has been providing and developing comprehensive and methodical educational programmes of continuing education. The importance of the preservation and protection of valuable library, museum, and archival materials is represented in yearly programmes through educational workshops, guest lecturers and webinars. The scope of this poster presentation is to demonstrate the main topics in the field in the programmes of the Centre, the number of lecturers, the number of attendees, their work experience, the applicability of the educational content to the attendees' workplace, satisfaction with the lecturers and with the educational content, as well as the attendees' willingness to recommend the content of the training they participated in to their colleagues. The presented results are based on the review of the statistical data collected by the evaluation questionnaires filled in by the participants after the CSSU courses and the archival documents from 2015 to 2020. Besides the overview of the results, further plans, such as the increase of accessibility of the educational programs, will be taken into consideration.

## ***Digital Data Preservation in National and University Library in Zagreb***

**Marko Orešković and Ratko Počuca**

National and University Library in Zagreb, Croatia

This poster will give a brief overview of the technologies used in the National and University Library in Zagreb for the storage and permanent preservation of digital and digitized material. The National and University Library currently stores about 60Tb of digital objects, which are located on file servers in the Information Technology Department, where system administrators responsible for ensuring the data integrity and security are taking care of it. File servers utilize RAID6 configurations with the b-tree file system on top of it to prevent "bit rot". Using open source technologies (such as Bacula backup solution), data is periodically backed up to LTO-8 tapes. With the increasing emergence of "born digital" objects in the future, we are planning to significantly increase disk space for permanent storage and dislocated backup at remote locations. The whole process is a big challenge for the library in terms of limited financial and, consequently, technical resources.



## ***Security Requirements for Digital Heritage Protection***

**Marin Vuković<sup>1</sup> and Tamara Štefanac<sup>2</sup>**

1 - University of Zagreb – Faculty of Electrical Engineering and Computing, Croatia

2 - National and University Library in Zagreb, Croatia

By acknowledging the value of digital heritage for creating and preserving the collective digital identity of contemporary societies, many cultural heritage professional organizations, academic community and diverse international bodies that focus on the preservation of cultural heritage have imposed the obligation to plan the security requirements for its protection. The digital heritage itself, observed as an asset, intellectual and identity-building property, has a value on a cyber-market. The same is valid for any organization that creates and preserves its business information in digital form. Threats in the realm of electronic information security are present nowadays in cultural heritage institutions that need to take actions toward risk mitigation against cyber-attacks of their digital assets. In the first part, this paper examines the qualities and characteristics of digital heritage objects and values that make digital cultural heritage more sensitive toward possible cyber-attacks. It also summarizes current research, strategies and guidelines in the field of information cyber-security and outlines the security requirements framework for digital heritage objects protection.

## *Methods Used in the Restoration of Flood Damaged Paper Objects*

**Tanja Dujaković and Sanja Serhatlić**

University of Dubrovnik - Arts and Restoration Department, Croatia

Of all the natural disasters that can happen to paper objects, the most frequent ones are those caused by water. Paper, being made of organic fibres, is a highly hygroscopic material. The paper used up to the middle of the nineteenth century has a much greater ability to absorb water due to the production process where large amounts of water were used during its formation. For example, books from that time will absorb up to 80% more water than their weight. Therefore, it is important to know all the drying methods of wet or damp books and documents and the criteria for selecting the appropriate method in the given conditions. This poster will show the theoretical and practical aspects of the mentioned issues. The procedure can be applied to individual objects or on large quantities of destroyed material, so the theoretical part will problematize ways of remediation that can be used in both cases. The first step in the procedure is a condition report of objects and selection by damage degree. Based on the diagnosis, it is decided whether individual remediation or mass protection methods will be performed. Direct intervention on individual objects usually includes separation of attached sheets (different ways and materials for separation), while mass methods use freeze-drying, lyophilization, deacidification, etc. The poster will also show examples from the practical field of conservation-restoration procedure on which we had the chance to work in the workshop for conservation-restoration of paper at the Department of Arts and Restoration of the University of Dubrovnik.

## ***Conservation and Restoration of Miroslav Šutej's Bum-Bum Mobile Damaged in the Earthquake***

**Petra Kursar and Ana Dumbović**

Modern Gallery (National Museum of Modern Art), Croatia

Due to the earthquake that hit Zagreb on 22 March 2020, the work made by the artist Miroslav Šutej in 1986, which was exhibited on the second floor of the permanent exhibition of the Modern Gallery, was severely damaged. Miroslav Šutej (1936-2005) made movable, brightly coloured plastic objects in wood in the late 1960s until the mid-1970s. The eponymous series also includes a branched work called Bum-Bum, 210 x 137 x 116 cm in size, inventory number MG-4160, with a base to which are attached numerous brightly coloured wooden balls of various dimensions. Unfortunately, the earthquake shaking caused the falling of Bum-Bum, which fell on the artwork next to it. Consequently, the work has cracked in multiple places, and the parts have separated. Restoration began on 16 June 2020, in the exhibition space of the Modern Gallery. Conservation and restoration works started with carpentry repair, which included glueing of the cracked and separated parts, and they were carried out by Davor Filipčić, a restorer carpenter from the Museum of Contemporary Art under the supervision of Petra Kursar, MFA, head of the restoration department of the Modern Gallery. The restorer performed the remaining works of puttying, retouching and varnishing the artwork. The spherical parts of the installation have been rearranged with the help of integrated movable joints into a new spatial organization, and the work still “lives” in direct interaction with the audience.

## ***Risk Managment of Cultural Heritage: Project “4 Universities 4 Konavle”***

**Danijela Jemo<sup>1</sup>, Antonia Rusković-Radonić<sup>2</sup>, Mateo Miguel Kodrič Kesovia<sup>1</sup>  
and Viktorija Pilon<sup>1</sup>**

1 - University of Dubrovnik - Art and Restoration Department, Croatia

2 - Museums and Galleries of Konavle, Croatia

The Konavle region suffered extensive damage during the Homeland War. Since then, the recovery process of its invaluable tangible and intangible cultural heritage has taken place continuously in various phases and on multiple levels. An essential contribution to care and preservation is the international project “4 Universities 4 Konavle”, implemented by the universities of Dubrovnik, Cologne, Vienna and Budapest in cooperation with the Museums and Galleries of Konavle, Konavle County Museum. Throughout two project phases, in 2018 and 2019, undertaken activities included condition assessment and in situ preventive conservation actions, detailed photo documentation of fragile Jelka Miš embroidery patterns collection, defining risk management process and improving museum display methods of the permanent exhibition as well as storage conditions.

## *One Museum - Several Catastrophes*

**Zvezdana Jembrih and Ana Božičević**

University of Zagreb – Academy of Fine Arts, Croatia

The Diocesan Museum in Zagreb was founded in 1942 to gather in one place the many works of sacral art from the area of north-western Croatia that were no longer in liturgical function and would therefore be lost. With its rich collection of sacral themes, it is among the most important institutions in Croatia. However, it does not actually exist! It functioned as an open institution until 1971 when it lost its exhibition space due to unfortunate circumstances. Its exhibits have since been displaced to various locations, most often in inappropriate conditions. Far from the eyes of the profession and the public, unvalued and superficially documented, these works of art have been left to decay and oblivion for decades. The Department of Conservation and Restoration of Works of Art of the Academy of Fine Arts, University of Zagreb, joined in the efforts to document and save the threatened collection. Since 2008, more than 50 wooden sculptures have been saved, researched, preserved, restored and presented at the exhibition *Un/Cured Saints* in 2016 in Zagreb. In January 2017, a disaster struck as one of the museum's storage facilities suffered flooding due to a burst pipe. Sculptures housed there, inadequately placed on the floor, laid in water for more than 24 hours. With an emergency intervention of the Department's professors and students, the sculptures were rescued, subjected to ionising radiation to suppress the fungi that had developed, and raised layers of polychromy were preventively consolidated. In the devastating earthquake on 22 March 2020, some of the sculptures on display in the corridor of the Archbishop's Palace, which were improperly secured, fell from their pedestals and were severely damaged due to falling debris. One of these was the sculpture of St. Joseph, which was previously preserved and restored at the Department in 2015. Will this disaster-prone, non-existent museum with its extremely valuable holdings ever see better days?

## ***After the Earthquake: A Proposal for Packing, Transportation and Future Display of a Damaged Object From the Zagreb Museum of Arts and Crafts***

**Bruna Vrljićak and Sagita Mirjam Sunara**

University of Split – Arts Academy, Croatia

A violent earthquake hit Zagreb in March 2020, causing extensive damage to the city's historical centre and collections of several large museums. Second-year conservation-restoration students at the Arts Academy in Split were assigned a hypothetical scenario related to that event as a part of the course in preventive conservation. Each student was provided with a photograph of a damaged object (or a group of objects) from one of the affected museums. The photographs were sourced from the museums' Facebook pages. In the first part of the assignment, each student was asked to write guidelines for the packing and transportation of the damaged object (or objects) to a conservation-restoration studio outside of Zagreb. Students were informed that they would not be able to do or oversee the packing and transportation of the damaged object since severe restrictions on travel within the country due to COVID-19 were in force at the time. That meant that they had to produce extremely detailed instructions so that even an untrained person could perform the task. The second part of the assignment consisted of drafting a proposal for the future seismic protection of the object in question. This poster will present student Bruna Vrljićak's proposal for the packing, transportation and future display of a large freestanding clock from the Zagreb Museum of Arts and Crafts, which was significantly damaged by the earthquake.

## ***Post-Earthquake Priorities in St. Catherine Church in Zagreb, Croatia***

**Mario Fučić**

retired senior conservator-restorer Croatian Conservation Institute, Croatia

A series of earthquakes hit the Croatian capital Zagreb in the year 2020. The baroque St. Catherine's Church suffered heavy damage to the structure of the vault and the whole surface of the interior stucco decoration. Although there is no doubt that the church has to be restored in accordance with a comprehensive Conservation Plan, there are several options on what can and should be done even before the production of such a plan. This poster discusses the specific steps needed on this particular building in the post-earthquake situation, as opposed to the approach in a conventional situation. Since any movement of people beneath the damaged vault of the nave is unsafe, and the floors of the church are covered with a great number of fallen fragments of stucco, it is necessary to take several preliminary steps. Their purpose is to ensure safety for the workers and to prevent further damage to the original historic substance. These steps must have two main characteristics: a) they must be conducted in a particular order: b) their execution must not foreclose on any possible option for the future Conservation Plan.

## ***Protection of Archival Records in the Making***

**Petra Špoljarić**

State Archives Bjelovar, Croatia

Archival material created by the work of the creator/owner of the material under the jurisdiction of the state archives belongs to the group of movable cultural property and is part of the material cultural heritage of the Republic of Croatia. The preserved material testifies to the history and development of the landscape, institutions, activities of public institutions, private companies, family/social life of the people of each region and various social events, continuously through the centuries. The protection of archival material as a cultural good is performed by archives in accordance with the Act on Archival Material and Archives (OG 61/18, 98/19). The State Archives in Bjelovar regularly supervise public and some private record keepers of archival material in the Bjelovar-Bilogora County and parts of Koprivnica-Križevci and Zagreb Counties.

## ***Solving Problems Brought by the Earthquake and the Pandemic in Public and School Libraries in Croatia***

**Dunja Marija Gabriel and Frida Bišćan**

National and University Library in Zagreb, Croatia

Since the beginning of March 2020, libraries have been facing special working conditions due to COVID-19 disease. Given the difficult working conditions of libraries in extraordinary circumstances and the fact that libraries in the Republic of Croatia are closed to patrons, the National and University Library in Zagreb, as the main library for all types of libraries, has prepared short guidelines on organizing the functioning of public and school libraries in crisis. It has proven particularly important that libraries as cultural institutions ensure continuity of work and, if possible, continue to provide the patrons with important support to the community. The guidelines cite various positive examples of online library services from practice:

- 1) Extension of the loan period for printed books.
- 2) Providing access to e-books to all interested citizens.
- 3) Organizing online services for children and adults: presentation of new titles and reading paragraphs from books, online reading sessions for children, educational web workshops from a variety of educational subjects, including foreign languages, a creative corner for children and youth.
- 4) Organizing a video campaign in which people from public and political life and interested citizens read favourite poetry, short prose or appeal to the importance of staying in their homes with a recommendation of good reading to promote reading culture among citizens.
- 5) Production of new digital products - virtual exhibitions, puzzles, colouring books, etc.
- 6) Increased library activities on social networks while encouraging users to use relevant sources of information related to the spread of coronavirus.

The guidelines are accompanied by the recommendations and guidelines for public and school libraries, which recommend the gradual opening of libraries and the provision of library services following all epidemiological measures. Amid the pandemic in the spring and winter of 2020, the City of Zagreb, Zagreb County, Krapina-Zagorje, Sisak-Moslavina and Karlovac counties were hit by earthquakes that are considered to be the strongest ones in the last 100 years. The earthquakes brought damage to a large number of buildings in which public and school libraries are located. The National and University Library in Zagreb offered libraries its assistance in storing materials and assessing the condition of damaged materials, as well as the ways of disposing of them. Hundreds of schools and some public libraries have suffered damage from earthquakes to their buildings, library materials and equipment. A special challenge is to finance the renovation of the public library and school buildings. The renovation will take place gradually over a longer period, according to the pre-determined priorities, from housing and health care institutions to educational and cultural institutions.

***Heritage Rescue in the Flood-Prone Areas in the Settlements of Gunja,  
Račinovci and Rajevo Selo***

**Marija Reberski<sup>1</sup> and Martina Mišetić<sup>2</sup>**

1 - Croatian Conservation Restoration Association, Croatia

2 - Muzej Cvelferije, Croatia

After the catastrophic floods of 2014 in the settlements of Gunja, Račinovci and Rajevo Selo, “The action of Heritage Salvation” followed. More than two thousand items were collected through the “Action”. After the completion of the classification and listing of the collected items salvaged from the flood, the work on their restoration began. The restoration continued to be carried out in the first years of the newly established Museum Cvelferije as the preparation of objects for the future permanent exhibition with the financial support of the Ministry of Culture of the Republic of Croatia and the founder of the Museum - Drenovci Municipality.



**ROUNDTABLE DISCUSSION:**  
***How to involve volunteers in heritage preservation?***

**Moderator:** Jovana Mijatović

**Participants:**

**Robert D. Montoya**, University of California Los Angeles, USA

**Svjetlana Jović**, United Nations Interim Force in Lebanon

**Žana Matulić-Bilač**, IIC - Croatian Group, Croatia

**Jovana Mijatović**, Kulturnaut - Center for Creative Children and Youth, Serbia

**Juraj Požgaj**, Volunteers' Centre Zagreb, Croatia

**Bert Ludwig**, European Heritage Volunteers

***Sacral Architecture Preservation in Western Ukraine During the Soviet Union Era***

**Zenon Sokolovskyj**

King Danylo University, Ivano-Frankivsk, Ukraine

This enlightening talk, personal testimony by the architectural conservator-restorer Zenon Sokolovskyj (Зенон Соколовський) surfaces the issue of personal engagement and enthusiasm in the protection and preservation of Ukrainian cultural heritage during the Soviet Union era. It also emphasizes the importance of archival records and architectural documentation created by conservators-restorers before a disaster in order to help in the post-disaster situations and during the recovery. It references the role of AV material on the case of St. Paraskeva Church, whose interior is the first sacral interior of a Ukrainian church ever depicted in the film media. The St. Paraskeva Church was depicted in the “Shadows of Forgotten Ancestors” film (1965) directed by the Armenian/Georgian film director Sergei Parajanov. Also, Zenon’s talk reveals the issue of a politically sensitive situation in which professionals could find themselves while working in the field of cultural heritage protection. This is the first time Zenon Sokolovskyj talks about these issues outside Ukraine.

Thematic lectures:

## ***Radiation Technology for the Protection of Artworks and Cultural Heritage - an Overview of Success Stories in Croatia - IN MEMORY OF DUŠAN RAŽEM, PhD***

**Branka Mihaljević, Katarina Marušić, Branka Katušin-Ražem and Dušan Ražem**  
Ruđer Bošković Institute, Radiation Chemistry and Dosimetry Laboratory, Croatia

Both chemical and physical methods have been developed for the treatment and restoration of cultural heritage artefacts. However, chemical methods may leave undesirable chemicals, and the conventional physical methods generally use extreme conditions that are not suitable for some types of materials. Gamma irradiation has several advantages compared to conventional preservation methods, mainly related to safety both for the users and environment, efficiency, reliability, capacity, and, as mentioned, processing time. As the radiation technique has many advantages in the conservation treatment of cultural artefacts, the interest in radiation treatment has significantly increased worldwide in recent years. Radiation methods are effectively used in the Radiation Chemistry and Dosimetry Laboratory (RCDL) at the Ruđer Bošković Institute (RBI) in Zagreb, which has a long-lasting experience, especially in the application of irradiation for the preservation of cultural heritage objects.<sup>1</sup> Numerous works of art have been successfully irradiated for disinfection purposes, such as wooden sculptures, church altars or their parts, artefacts from various museum collections, books, archival documents, musical instruments, ethnographic objects, archaeological findings and various historical collections. In order to increase the knowledge of the advantages and limitations of nuclear technology for cultural heritage applications, it is important to evaluate possible irreversible physical or chemical modifications induced by ionizing radiation on treated materials. So far, the results obtained have shown that radiation disinfection of cultural heritage can be successfully achieved and safely applied with no significant changes or modifications of the main properties of the constitutive materials of the processed objects.

1. Katušin-Ražem, B., Ražem, D., Braun, M. Irradiation treatment for the protection and conservation of cultural heritage artefacts in Croatia. *Radiation Physics and Chemistry* 78 (2009), 729-731.

### ***Radiation Technology Under the Conditions of Crisis -***

### *Example From the Croatian War of Independence*

**Branka Katušin Ražem, Katarina Marušić and Branka Mihaljević**

Ruder Bošković Institute, Radiation Chemistry and Dosimetry Laboratory, Croatia

The application of radiation technology has proven to be a superior methodology compared to other techniques used for decontamination and/or preservation of cultural heritage in times of crisis. It is particularly suitable and effective for the prevention of large-scale biological degradation of works of art endangered by the war since a large number of objects needed to be processed in a short period. There is no other technology that can treat such large amounts of objects in a matter of hours. One of the most significant examples of the application of this technology in times of crisis is its use during the Croatian War of Independence from 1991-1995. Wartime conditions, maintenance and preservation without continuity, relocations, and inadequate temporary storage facilities cause major deteriorations of cultural heritage. The war in Croatia seriously jeopardized Croatia's cultural heritage. Rescue, evacuation and protection of cultural heritage affected by the war in Croatia was a serious challenge for many experts from various fields, as well as volunteers, involved in the protection of cultural goods. During the autumn of 1991, due to war destructions, conservation and restoration institutes began an extensive operation to save cultural heritage. Around 5000 objects, mostly wooden polychrome sculptures, paintings and parts of altars, were evacuated. In order to reduce the problem of large-scale biodegradation, the Croatian Conservation Institute decided to apply the radiation method to works of art using the irradiation device at the Ruđer Bošković Institute. This example of the use of the radiation method to rescue cultural heritage endangered by the war in Croatia was recognized by international experts as a particularly successful example of applying this method and is to this day presented as an example of the efficiency of this unique technique in times of crisis.

1. Katušin-Ražem, B., Braun, M., Ražem, D. *Massive Preservation of War-Damaged Cultural Heritage Objects in Croatia by Irradiation*. In: "Uses of Ionizing Radiation for Tangible Cultural Heritage Conservation", IAEA Radiation Technology Ser. No. 6, IAEA, Vienna, 2017.

***“Gamma” Remedial Conservation After Disaster:  
A Technique Not to Be Overlooked***

**Laurent Cortella**

ARC-Nucléart, France

Organic materials present in artworks, archives, or other artefacts that constitute our heritage, are not only at risk during a disaster when it occurs but sometimes also for a long time after the disaster, particularly when uncontrolled conditions after a disaster lead to biodeterioration phenomena. Fungi (rots, moulds) and insects are the worst pests. Preventive conservation aims to avoid such situations. Possible failure analysis can anticipate some crisis circumstances, and early response can limit the future problems, but arresting ongoing damaging processes when items deteriorate at a dangerous rate or reinforcing their structure when they are in a too fragile condition become often a necessity. This is the definition of remedial conservation, and one needs to be prepared to implement the most effective techniques for that. Among the available techniques, the so-called “nuclear” techniques can be very helpful. Indeed, thanks to its penetrating power, gamma ray-based techniques offer the possibility to perform ionization in the whole volume of infested artefacts, ensuring very reliable biocidal effects. Ionization can also trigger and pilot co-polymerization by cross-linking radio-curable resin used to consolidate the weakest artefacts made of porous materials. ARC-Nucléart has been implementing these techniques for 50 years and has treated thousands of artefacts since then. Examples of treatments will be presented. They include mass treatments after large-scale infiltrations in the storage building of National Archives, and the recent emergency rescue of a mummy after flooding in a Museum. Interestingly, if necessary, freeze-drying techniques can complete the biocidal treatment, as it is applied for waterlogged archaeological organic materials. In case insects or fungi attacks have been so virulent that it is impossible to save the objects by conventional conservation techniques, last chance consolidation by radio-curable resin can also be carried out for polychrome or natural wooden sculptures.

***Trends and Applications of Ionizing Radiation for Preservation of Cultural Heritage Tangible Artifacts Contribution of Education, Science and Technology to Strengthening Resilience of Cultural Heritage at Risk of Disasters***

**Pablo Vásquez<sup>1</sup>, Maria Nagai<sup>2</sup>, Leni Lima<sup>3</sup>, Maria J.A. Oliveira<sup>1</sup>,  
Ana C.D. Vieira<sup>2</sup> and Paulo Santos<sup>4</sup>**

1 - Nuclear and Energy Research Institute - IPEN/CNEN, Brazil

2 - University of Sao Paulo, Brazil

3 - Instituto Florestal, Brazil

4 - Nuclear and Energy Research Institute - IPEN, Brazil

Disinfection of cultural heritage artefacts and archived materials using ionizing radiation has been successfully applied and accepted by the Brazilian conservation and preservation institutions and community in recent years. Several works of art, museum collections artefacts, books, manuscripts, drawings, archival documents, musical instruments, ethnographic objects, archaeological findings and natural history collections have been decontaminated. Several research studies have been developed addressing the behaviour of cellulosic based materials treated with ionizing radiation. However, many Brazilian collections have objects made from the most diverse constitutive materials, and these are affected by biodeterioration. In order to the effective decontamination of the most diverse types of objects, there was a need to establish protocols for care of institutions and individuals carrying cultural and historical collections and for the effective processing by ionizing radiation in the facilities respecting the ethical principles of conservation and restoration covering activities from the problem detection to the final cleaning. Additionally, ionizing radiation has allowed the development of innovative nanostructured cross-linked materials, with applicability in cleaning delicate surfaces. This work presents the most recent results of the effect of ionizing radiation on morphology and physicochemical properties of photographic and cinematographic films, featherwork and botanical collections – exsiccate, as well as the protocols developed as a practical guide for conservatives and professionals of the irradiation for the treatment of tangible objects. Preliminary results of nanostructured cross-linked polymeric hydrogels for cleaning the surface of artworks obtained by ionizing radiation are also presented. The IAEA sponsored projects have helped increase the acceptance of nuclear technology by the Brazilian society, especially by the community of restorers, curators and conservators of material cultural goods. The research developed and disseminated with the support of IAEA contributes to the understanding that the cultural heritage is the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and restored for the benefit of future generations.

## *Post-Irradiation Effects on Properties of Paper*

**Constantin Daniel Negut<sup>1</sup>, Ion Bogdan Lungu<sup>1</sup> and Silvana Vasilca<sup>1,2</sup>**

1 - HORIA HULUBEI National Institute of Physics and Nuclear Engineering, Romania

2 - University of Bucharest - Faculty of Chemistry, Department of Analytical Chemistry, Romania

Gamma radiation can be used for disinfestation of cultural heritage artefacts that contain materials that are a source of food for the species involved in biodegradation. A dose of 10 kGy can be regarded as a threshold below which functional properties of artefacts are not significantly affected. One of the issues is the stability of free radicals induced by irradiation and their post-irradiation effect on the properties of sensitive materials such as paper. Previous studies used thermal annealing of radiation-induced free radicals because their depletion can take months. This method can overestimate their effect because at room temperature most of them combine locally, thus producing no post-irradiation effects. In this talk, we present the room temperature kinetic of radiation-induced free radicals on different types of paper and their effect on the colour and mechanical properties. Post-irradiation effects on 10 kGy gamma-irradiated fresh and naturally aged paper were evaluated over four years. Mechanical tests show no significant post-irradiation effects except for office paper that exhibits a decrease in force at break (in the cross-machine direction) of about 20% when measured two years after irradiation. For all the samples, the colour changes over time for both non-irradiated and irradiated samples follow the same direction, and small, measurable differences will be insignificant in the long term. In conclusion, irradiation of naturally aged paper at an upper dose of 10 kGy will not produce any significant post-irradiation effect.

***Preventive Protection and Gamma Irradiation of Cultural Heritage, Examples of Croatian State Archives Heritage Conservation in Post-Disaster Situation***

**Igor Kozjak**

Croatian State Archives, Croatia

The main occupation of the Central Laboratory for Conservation and Restoration of the Croatian State Archives is to restore, conserve and preserve the written heritage. In order to stop the irreversible damage due to external factors, we are working in collaboration with colleagues from the Radiation Chemistry and Dosimetry Laboratory at the Ruđer Bošković Institute. This collaboration aims to stop the damage made by microorganisms and insects on books/paper. This is done by gamma irradiation at the required dosage. Gamma radiation is used to disinfect books and paper from mould, fungi, bacteria and also to eradicate insects that usually inhabit book boards. To avoid the use of these more or less invasive methods, emphasis should be placed on preventive protection. Preventive protection is a commonly used method in conservation and restoration to protect the written heritage both before and during disasters to reduce the possible damage outcome. At the Central Laboratory for Conservation and Restoration, we are very prepared and used to dealing with situations involving natural or human-made disasters that include flooding and its damage to books/paper. Part of the Central Laboratory for Conservation and Restoration is a Center for Salvaging Archive Material After Disasters (CSAG). At the CSAG we are equipped with tools required to slow down or stop the damaging processes that happen after the flooding and include microorganism growth.



## *The Influence of Gamma Radiation on the Binders in Paint Layers*

**Domagoj Šatović<sup>1</sup>, Valentina Meštrić<sup>1</sup>, Vladan Desnica<sup>1</sup>, Branka Mihaljević<sup>2</sup>  
and Katarina Marušić<sup>2</sup>**

1 - University of Zagreb – Academy of Fine Arts, Croatia

2 - Ruđer Bošković Institute, Radiation Chemistry and Dosimetry Laboratory, Croatia

This study was undertaken to determine the possible harmful effects of gamma radiation on the materials commonly used as binders in artwork paint layers. Six types of binders were taken for investigation divided into two groups according to their chemical structure; (i) polysaccharide binder, that is, Arabic gum and (ii) protein binders which include egg white, egg yolk, whole egg, casein and animal glue. The binders were exposed to radiation doses of 2, 7, 10, 25 and 100 kGy. Two different dose rates were used, a larger dose rate  $\dot{D}_{\max} = 7,695 \text{ Gy/s}$ , and a lower dose rate  $\dot{D}_{\min} = 69.98 \text{ Gy/s}$ . After irradiation, colour changes of the binders were measured by UV-VIS spectrophotometer. Possible changes in the molecular structure were measured with the ATR FTIR spectrometer. Subsequently, all six binders were mixed with lead white pigment, and prepared samples were subjected to the same irradiation treatment as the binders themselves to investigate the influence of the most common pigment used in historic canvas paintings. Some noticeable changes in colour and structure were observed, but only at dose rates significantly greater than doses applied for radiation treatment of cultural heritage.

### **References:**

1. Adrović Feriz, *Gamma Radiation*, InTech, London, 2012, IX.
2. AL-Assaf Saphwan, Coqueret Xavier, Khairul Zaman Haji Mohd Dahlan, Ulanskirmurat sen Piotr, *The Radiation Chemistry of Polysaccharides*, International Atomic Energy Agency, Vienna, 2016, 79.
3. AL-Bachir Mahfouz, Zeinou Ruba, *Effect of gamma irradiation on some characteristics of shell eggs and mayonnaise prepared from irradiated eggs*, *Journal of Food Safety*, Vol. 26., No. 4., 2006, 348. – 360.
4. Alijani Samira, Balaghi Sima, Mohammadifar M. Amin, *Effect of gamma irradiation on rheological properties of polysaccharides exuded by A. flucosus and A. gossypinus*, *International Journal of Biological Macromolecules*, Vol. 49., No. 1., 2001, 471. – 479.
5. Anglemie A. F., Montgomery M. W., *Amino Acids, Peptides, and Proteins*, *Food Science*, Vol. 4., 1976, 205.-284.
6. Arihara K., Ishikawa, Itoh M., I.-S., Tamaki S., *Egg Yolk Protein and Egg Yolk Phosvitin Inhibit Calcium, Magnesium, and Iron Absorptions in Rats*, *Journal of Food Science*, 72, 6, 2007, 412. – 419.
7. Atgie Marina, *Composition and structure of gum Arabic in solution and at oil-water interfaces*, *Université de Toulouse, Institut National Polytechnique de Toulouse (INP Toulouse)*, Toulouse, 2018.
8. Bhat Younus Mohd, Dar Ali Taanver, Singh Rajendrajumar Laishram, *Casein Proteins: Structural and Functional Aspects*, in: Gigli Isabel (ed.), *Milk Proteins - From Structure to Biological Properties and Health Aspects*, INTECH, London, 2016, 3.-18.
9. Bretscher L.E., Holmagren S. K., Taylor K.M., *Code for collagen's stability deciphered*, *Nature*, Vol. 6677, No. 392, 1998, 665.-667.

## *After the Earthquake – Damages on Wooden Objects and the First Steps of Preservation*

**Maja Sučević Miklin<sup>1</sup> and Marija Reberski<sup>2</sup>**

1 - independent, Croatia

2 - Croatian Conservation Restoration Association, Croatia

The types of damages depend not just on the strength of the earthquake but also on the object's condition, technological layers and the location of the object. For example, if a wooden object with good structural condition falls from a shelf during an earthquake, this could result in damages to the wooden surface, causing mechanical damages like dents and scratches, but if the wooden object has layers such as polychromy and gilding that are more fragile, the fall could cause severe damages resulting in the loss of the mentioned layers. If the building structure caves in during the earthquake, bricks, pieces of concrete, thick layers of dust and dirt, precipitation (if the roof is cracked) can cause significant and severe damages not just on the surface of the objects but also to its wooden structure causing breakages (especially if the woodworm has already damaged the structure causing no mechanical resilience), crushed parts can become irretrievable, fragments could be displaced, dust could penetrate the layers and precipitation could soften the ground layers. The virtual workshop will present simulations of different types of damages caused by an earthquake that can occur on wooden objects and the general measures of preservation to protect the objects depending on the type of damage and condition of the objects. Procedures that will be presented include dusting and surface cleaning from dirt and debris, preventive consolidation of severely damaged layers and wooden structure using adhesives in liquid form and spray discussing their positive and negative characteristics, the process of recording the condition of the objects using general condition reports and photo-documentation, and finally handling and packaging damaged objects for transportation.

## ***Determining Quantity Structure for the Storage and Storage Technology Planning in Museums***

**Joachim Huber**

Prevart Ltd, Switzerland

Reliable foundations are a prerequisite for the success of a depot project. The creation of a user requirements program begins with the development of the so-called quantity structure for the storage of the collection objects. How much space will be needed in the future? How can objects be stored appropriately, what storage technology should be used and how much reserve for future collection growth should be included? The workshop shows the procedure and methods to collect the required data efficiently and effectively yourself (or have it collected by third parties) and to prepare it for future use. The workshop teaches how the information is collected on site at the depot/archive and how it is to be prepared for further planning. In addition, a provider-neutral overview of the technical possibilities available today for the safekeeping and storage of cultural assets of all kinds will be given. Participants are welcome to bring in their own concrete questions from their everyday museum life.

Target audience:

Employees of museums of all sizes who are planning a new depot or a major depot relocation.

***Are You Ready? Preparing for Disasters to Lessen the Impact of Damage***

**Jeanne Drewes**

Library of Congress, USA

Cultural Institutions worldwide are exposed to many threats to the integrity of their buildings and collections. From theft to fire, from wind and rain to flooding and earthquakes, all cultural institutions, from museums to archives to libraries, have various threats to their contents and continuation of services. Learn more about how to assess your institution's threats so that you can put your efforts into the best means of reducing those threats. This workshop will not only provide information but also supplies handouts that can be used to help assess risk, to consider how best to evaluate risks for your particular situation and then reduce the threat of loss based on that knowledge. Disasters are never a happy topic to consider but knowing that you are ready for what is most likely to happen will help when the disaster happens. It is not a question of if; it is a question of when. So be prepared through advance preparation and consideration.



***How to Salvage Valuables After Serious Flooding –  
Archives Rescue Center, Kerestinec – CSA***

**Marijana Mimica Tkalčec, Martina Bagatin, Mladen Burić and Igor Kozjak**  
Croatian State Archives, Croatia

The documentary shows the course of rescuing archival material after the flood in the Rescue Center of the Croatian State Archives at the location in Kerestinec. Employees of the Center provide insight into the situation that arises, in this case most often by floods. The rescue process and method are told, from the first reports of disasters, the meaning of the time that is crucial to save the material (almost always, the first hours when a disaster occurs are critical, as well as organisation). It is mandatory to take into account what is happening, find time to plan intervention; invite the so-called key people, from the director of the institution, the building manager, the head of insurance, the spokesperson, to the insurance company). The information gathered during the damage assessment will help develop a 'what-to-do-next' plan. While the damage assessment is taking place, part of the team is preparing the materials needed for the rescue, which include: procurement of packaging boxes, polyethene foils for separating individual units, protective equipment for people who will work - coats, masks, gloves. The documentary also mentions and explains the diversity of material damaged by the floods. If possible, the archival should be separated from the library material and sorted according to the period of creation, which would create priorities that should be respected.

There is a cold storage room within the Rescue Center ready to accept flooded material at -17°C. In addition to cold storage, there is also the so-called drying room for drying materials, equipped with perforated metal shelves that allow unobstructed airflow and a system for blowing warm air and expelling moisture. Operating parameters in the dryer are 35% RV and 55°C. For work in the dryer, it is necessary to prepare blotters of different formats depending on the type of material. Depending on the needs and wishes of the owner, further processing includes: flattening of the material (individual sheets, documents, photographs, etc.) and returning to adequate packaging for the return of material - boxes.

Along with the necessary documentation, it is always crucial to enclose measures and instructions on the adequate methods of storing the valuable archival material in order to protect and avoid the danger of new damages.

*From Petrinja With Love***Ambedo Media**

The film is about solidarity and helping the Library of the Faculty of Teacher Education at the University in Zagreb, the local branch in Petrinja, which was seriously damaged during the strong earthquake that affected the Croatia region Banija on 29 December (6.2 Richter scale). The building in which the library is located was declared unusable, and the International Institute for the Restoration of Historic and Artistic Works IIC - Croatian Group (a branch of the International Institute for Conservation of Historic and Artistic Works) initiated from 13 until 25 February 2021, in collaboration with the National and University Library in Zagreb, volunteer action for rescuing old and rare materials from the library. Employees from the Preservation and Storage Department at the National and University Library in Zagreb and the members of the IIC - Croatian Group participated as volunteers in reviewing the condition of the material, triage of the material and its preparation for evacuation.

After triage, enumeration and packaging in boxes, the most valuable book material from the 1840s owned by the library in Petrinja was transported to the National and University Library in Zagreb, where it will be temporarily stored until the faculty building is renovated. The most damaged material from the library in Petrinja will be restored at the Preservation and Storage Department, which has almost 60 years of experience in the protection of library materials

## *Earth 5.5*

**Antonia Tikvica**

Cold and scattered photographs give a complete deviation of the soul and bring closer the rationality and coldness of a natural force, an earthquake. The black and white contrast with its monochromatic tactility is based more on feeling and pain than on the objectivity of the passing, transient misfortunes itself.

In the desire for documentation, I took the camera with my hands to capture some light and immortalize the damaged organs. The photos resonate with fear and anxiety, and the impression reinforces a situation in which I felt obliged to take my position, even though I knew that I was not entirely sure about capturing such shots.

As part of the association IIC Croatian Group, the idea of counting and displaying the damage was soon created.

Beaumont Newhall points out that a photographer in the genre of documentary photography seeks to do more than just transmitting information: his goal is to convince us.



## *Lidija Bajuk Musical Performance*

### **Lidija Bajuk Quartet**

Bajuk Quartet consists of the female singer and guitarist (Lidija Bajuk), and three accompanying musicians playing cello and vocals (Stanislav Kovačić), various traditional instruments and vocals (Jadran Jeić), drums and percussion (Borna Šercar). Lidija Bajuk graduated in primary teaching, librarianship, ethnology and anthropology. She worked as a professional writer and musician. Today, as a scientist, she holds a position at the Institute of Ethnology and Folklore Research in Zagreb. Her first notable performances were at the concerts of John Mayall and Joan Baez in ex-Yugoslavia. She is an awarded member of the Croatian Writers' Association and Croatian Composers Society. She has released eight music albums, seven books of poems, four books of short stories, about thirty scientific and sixty expert papers. She was an author of the nomination folksongs from Međimurje (called Međimurska Popevka) for inclusion in the Register of Cultural Goods of Croatia, as well as a coordinator, cosignatory and film screenwriter of the same for the UNESCO Representative List of the Intangible Cultural Heritage of Humanity. She composes music for theatre plays, performances, movies and dance choreographies and is a cowriter of a few ethnographic films. As one of the key figures of the Croatian ethno music scene, which has been developing since the early 1990s, she revives old Croatian songs. She has presented her own artwork in the country and abroad more than a thousand times, on forty occasions at international festivals and twenty times during Croatian culture days abroad. Her interests are ethnography and mythology.

You will hear three traditional songs accompanied by guitar, cello, Greek baglama, various percussion and traditional Croatian tambura bisernica and brač of Farkaš's tuning which is also included in the UNESCO heritage list as a cultural good "art of playing on farkašica tamburas in the north and northwest Croatia".

Song Last Night I dreamt whispers softly about lover's dream.

Song Handsome Youngsters from Međimurje describes young boys performing circle-dance and czardas with their chosen ones. In this case, the chosen one is a young widow.

Song My life is Like a Night is a lover's reflection on unrequited love.

#### **1. Snočka sam senjala / Last Night I Dreamt**

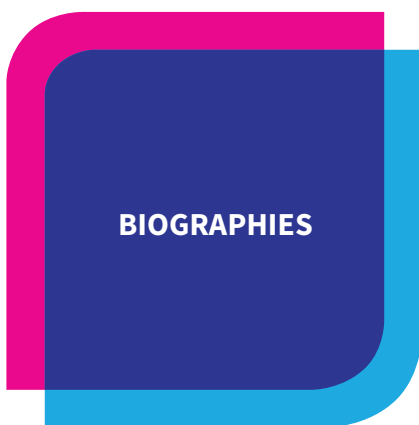
Lidija Bajuk (vocals, guitar), Stanko Kovačić (cello), Jadran Jeić (Croatian tambura of Farkaš's tuning, vocals), Borna Šercar (percussion)

#### **2. Međimurski lepi dečki / Handsome Youngsters from Međimurje**

Lidija Bajuk (vocals, guitar), Stanko Kovačić (cello), Jadran Jeić (Greek baglama, vocals), Borna Šercar (vocals, percussion)

#### **3. Život mi je kakti noćka / My Life Is Like a Night**

Lidija Bajuk (vocals, guitar), Stanko Kovačić (cello), Jadran Jeić (Croatian tambura of Farkaš's tuning), Borna Šercar (percussion)



**Aleksić, Gabriela** holds a master's degree in graphic engineering, obtained from the Faculty of Graphic Arts in Zagreb, Croatia. She's currently working in the conservation and restoration field and is head of the Book Preservation and Binding Division at The National and University Library in Zagreb. Gabriela is actively involved in implementing preventive measures at the Library and is also teaching courses on disaster risks and preventive measures in libraries as part of a programme by the national Centre for Continuing Education of Librarians (CSSU). She also has extensive work experience in teaching bookbinding at a special needs school and as a process technologist at a private packaging factory.

**Antony, Anjali** from Kochi, Kerala. She did her graduation in English Language and Literature from St Teresa's College, Ernakulam. Currently, she is enrolled as a research scholar in English Literature and Cultural Studies at CHRIST (Deemed to be University), Bangalore. She was part of multiple projects and other socio-cultural activities during her university days. She headed various college-based organisations which included the Teresian Rural Outreach Program (TROP). They carried out Spoken English classes using Information and Communication Tools for the underprivileged students of various government schools in the district. During her final year under-graduation, she did a one month course on Creative Expression at the London campus of the Richmond American International University. She took up a short-term project of conducting a psychogeographic study of South Kensington, London. Coming back to her hometown she applied the same theoretical tool to study Cochin, India. The results obtained from this study was an eye-opener and helped her in academic progress that she won the best undergraduate thesis of the year. She was also awarded Outstanding Student of the Year in 2017. In the year 2018 she was elected to be the program coordinator of the United Nations Academic Impact Program, St Teresa's College Chapter. Their team did a project on the Educative Unemployment Amongst Women in Kerala. The same year she worked with King's College, London as a site translator for their project entitled (Dis)connected Infrastructure and Violence Against Women funded by the British Academy.

With the advancements in technology, it is fascinating how Artificial Intelligence tools can be applied in order to analyse and preserve the immense cultural heritage across the globe. So presently she is looking into the various nuances and scope of how AI can be applied to learn more about different cultures and to preserve their heritage in times of crises.

**Ašler, Lucija** holds a master degree from the Faculty of Food Technology and Biotechnology, University of Zagreb. She gained her professional experience in conservation-restoration of paper-based materials at the Preservation and Storage Department of National and University Library in Zagreb. Currently she works at the same department as senior conservator-restorer and head of the Conservation-Restoration Division.

**Atalić, Josip** was born in 1976 in Otočac. After primary education in Otočac and secondary education in Zagreb (MIOC), he graduated in 2001 from the Faculty of Civil Engineering, University of Zagreb. At the same faculty, he was employed in 2001 in the Department of Technical Mechanics, where he still works today. He received his doctorate in 2011 on the

topic of traditional constructions and was elected to the scientific-teaching title of associate professor in 2019. He is actively involved in the teaching of the Department of Statics, Dynamics and Stability of Structures. He has participated in five domestic scientific projects and two European projects and is the author of about thirty scientific papers. The main areas of his research are seismic engineering, numerical modeling, and historic buildings. He is the author of the national documents Disaster Risk Assessment in the Republic of Croatia - Earthquake Risk and several activities related to earthquake risk reduction. He is a member of the technical committee HZN / TO 548 / PO 8 (Eurocode 8) and the working group for security for the development of the National Development Strategy until 2030. After the earthquake in Zagreb, he participated in several mitigation activities that continue today.

**Babić, Darko** works as an assistant professor at the Sub-Department of Museology, Department of Information and Communication Sciences, Faculty of Humanities and Social Sciences, University of Zagreb. He is acting Chair of the National Committee of International Council of Museums (ICOM Croatia) and active in the International Committee for the Training of Personnel (ICOMICTOP). He is one of the founders (2009) of "Interpret Europe" - the European Association for Heritage Interpretation, where from 2010 to 2019 he served as a member of the Supervisory Board, for three terms. He has been the national leader on two EU-funded R&D projects. Darko is an occasional author of interpretive plans and museological concepts, as well as a reviewer and advisor of heritage projects. His main interests are in the field of interpretation and heritage management.

**Balog Vojak, Jelena** has been working as a documentalist at the Croatian History Museum since 2004. She is the author of several professional papers and publications in the field of museum documentation and digitalization, published both in international and domestic professional publications. Since 2019, she has been a member of the Standing Committee for the Development and Maintenance of the "Rulebook for the Description and Access to Materials in Libraries, Archives and Museums".

**Barić, Mislav** (1990) has a bachelor's degree in Latin language at the Centre for Croatian Studies and a master's degree in history at the Faculty of Humanities and Social Sciences at the University of Zagreb (Croatia). During his studies he has focused on researching vexillology, global history and military history. In accordance with that focus, he has also studied at the University of Vienna (Austria) and done an internship in the Centre for Military History and Social Sciences of Bundeswehr in Potsdam (Germany). From 2016 he is a museum curator of the Collection of Flags and Streamers and the Collection of Uniforms at the Croatian History Museum in Zagreb (Croatia) where he works on exhibitions as well as the protection of cultural heritage objects.

**Bell, Graham** European advisor and practitioner: Director, Cultura Trust and Hungarian Renaissance Foundation; board member, Europa Nostra (Awards, European Green Deal, 7 Most Endangered); Executive, European Federation for Architectural Heritage Skills; advisor to EC, European NGOs, UNESCO Chairs; member, ICOMOS and Europeana Network Association; international keynote speaker; postgraduate tutor; academic and professional publications; European partnership programmes; working with Klesarska škola, Brač.

**Bišćan, Frida** library adviser, works in the Croatian Institute for Librarianship (Center for Libraries and Librarianship Development) at the National and University Library in Zagreb as a consultant for the school libraries. Her field of interest are history, work and activities of public and school libraries. She is a member of the The Permanent Board for Maintenance and Development of the online System of Unique Library Performance Electronic Statistical Data Collecting (<http://hk.nsk.hr>). In the Training Centre for Continuing Education of Librarians in Croatia she holds courses and workshops for librarians. She actively participates in a work of the Croatian Library Association, helping with organization and participating at expert meetings, conferences and workshops in Croatia and abroad. She is the author and co-author of several published books and scientific articles. In the past ten years she created and led three international projects co-financed by the European Union.

**Blažić, Magdalena** is a graduate student at the Faculty of Humanities and Social Sciences, University of Zagreb, Department of Information and Communication Sciences and Department of History. Upon completion of student internship during crisis at the Institute of Art History, she continued as volunteer.

**Božičević, Ana** is an Assistant Professor at the Department of Conservation and Restoration of Works of Art at the Academy of Fine Arts, University of Zagreb. She is the head of numerous projects for the restoration and preservation of cultural heritage under the supervision of the Ministry of Culture of the Republic of Croatia. Her field of interest is conservation and restoration of wooden polychrome sculptures and altars. She holds thematic workshops, actively participates in professional conferences and organization of exhibitions. She is a mentor to graduate students. She is presently enrolled in a PhD program in the protection of cultural monuments at the Faculty of humanities and social sciences in Zagreb.

**Campbell, Lynn** obtained a Fine Arts degree and studied for a post graduate qualification in the conservation of paper in the UK. She taught conservation in Zanzibar, East Africa to students from East African countries and worked at the Royal Scottish Museum in Edinburgh before returning to Newcastle upon Tyne to teach conservation. She worked at the Robert McDougall Art Gallery (now Christchurch Art Gallery) for 28 years. Lynn was at the Getty Conservation Institute in 2012 where she undertook research into earthquake preparedness for cultural institutions and took part in a course in China in 2015 (organised by the International Institute of Conservation and the Royal Historic Palaces in Beijing) on new scientific approaches to preventive conservation. Lynn returned to the UK in 2017 where she undertook

research into the conservation of heritage wallpapers. This was generously funded a Winston Churchill Fellowship. Lynn has recently returned from Iceland where she gave a paper at the XXI International NKF Congress 26th - 28th of September 2018. Lynn has been co-ordinator of the Canterbury Disaster Salvage Team since 1987.

**Chaterera-Zambuko, Forget** teaches archival science at the National University of Science and Technology, Zimbabwe. She is a post-doctoral fellow at Sorbonne University, Abu Dhabi, and a research fellow in the Department of Information Science at the University of South Africa. She is currently working on a piece called 'Ngadzoke Please: A Dare / Inkundla for the Rhodesian Army Records', which considers archival displacement through the lens of traditional Zimbabwean jurisprudence.

**Cigula, Tomislav** was born on October 24th, 1979 in Zabok, living in Lepajci, village near Krapina. In 2006 he graduated at University of Zagreb, Faculty of Graphic Arts, where he earned his PhD degree in 2011. Since his graduation he works at the Department for printing plates. In 2017 he was elected as an assistant teacher in the field of graphic technology. The changes in the organizational structure of the faculty included him to the newly formed Department for graphic materials and printing plates where he was elected head of the Department in 2019. His field of the scientific research was in the graphic reproduction processes where he was associate in several national and bilateral projects. Currently he is working as project leader on a project "Development of the model for production efficiency increase and functionality of packaging" financed by the Croatian Science Foundation. During his carrier he published nearly hundred papers and was included as a revisor of few scientific magazines and conferences. Beside his scientific work, he was also included in the technological developments of the commercial firms in the field. From 2017 to 2019 he was conducting joint project with the Croatian firm Grafik.net in Alkaloid a.d. and some print houses in Macedonia with the goal of developing and/or improving quality control procedures and production processes of paper packaging. In the 2019 he was also confirmed as an expert advisor of the European Bank for Reconstruction and Development. Tomislav is also active member of the Faculty by working in the few commissions (2011-2014 Commission for teaching and graduation works, 2012-2014 Commission for determining workers misbehaviour, 2019- Commission for improving teaching processes). From 2012-2013 he was head of the syndicate branch at Faculty. In his hometown he is member of the voluntary fire brigade, where from 2009 to 2013 he was vice-president and from then he was appointed as the head of the intervention unit.

**Clausse, Guy** studied Economics and Business Administration at the Universität zu Köln (Diplom-Volkswirt 1975; Dr.rer.pol. 1979). He worked as a Teaching Assistant at Cologne University from 1972 to 1975, and as an Assistant Professor until 1980. He then became the Executive Secretary of the Instituto de Estudos para o Desenvolvimento in Lisbon; being on secondment from the Research Department of the Friedrich Ebert Foundation in Bonn. Guy Clausse joined the European Investment Bank (EIB) in 1985 as a senior economist in the Economic Studies Department, and then became Coordinator and Head of Division within

the Lending Operations and Projects Directorates. In 2004 he took up the position of Associate Director of the Policy Support Department. In 2007 Clausse was appointed as Director of the Convergence and Environment Department and then of the Environment and Regional Development Department. He has been a Special Advisor to the Director-General since 2011. Guy Clausse was nominated as Dean of the recently created EIB Institute in 2014. During his mandate, the 7 Most Endangered programme, established by Europa Nostra in partnership with the EIB Institute, was further developed. He continues to cooperate with the EIB Institute, following his retirement at the end of 2015. He is a committee member of several social and charitable associations. In 2018, Guy Clausse was appointed as Executive Vice-President of Europa Nostra.

**Cortella, Laurent** after master's degree in nuclear physics and engineering, he had an initial 5 years' experience in material sciences research, obtaining a PhD in this speciality, and another 5 years in radiological protection at French Commission for Atomic Energy (CEA). In 2002, the CEA gave him the opportunity to be available as head of facilities management and research engineer at ARC-Nucléart\*, Grenoble, France, where he operates since that time. He is in charge of research and services of irradiation for remedial conservation of cultural heritage (biocidal treatments against pest and consolidation with radio-curable resin of the most weakened objects made of porous material). Thanks to those techniques, he worked on the conservation of many thousands of artefacts. Beside nuclear techniques for heritage, he has been involved in many problematics of organic materials preservation, from museums or churches historic collections to archaeological waterlogged wooden artefacts, which gave him the opportunity to develop a cross disciplinary expertise. He also intervenes in advising as well as carrying out cultural heritage treatments in France and abroad, "from excavation to the museum", always trying to make the link in a pragmatic way between the research and the implementation of the available techniques. As responsible of an intermediate scale irradiation facility, he also provides custom irradiation service for research and industry in link with R&D programs or for radiation resistance qualification tests for instance.

\*ARC-Nucléart is both a laboratory and a workshop for cultural heritage preservation, dependent of the CEA, the French Ministry of Culture, and the Grenoble City. It operates many technical facilities, the main one being a 60Co pool irradiator.

**Costa, Inês de Carvalho** enrolled in a bachelor's degree in Art History at Faculdade de Letras da Universidade do Porto (Portugal). During that period, she also did an Erasmus program at Università degli Studi di Verona (Italy). Afterward, she completed her master's degree in art history, Heritage, and Visual Culture also at Faculdade de Letras da Universidade do Porto. Currently, she intends to continue her research through the realization of a doctorate in Heritage Studies.

**Cunliffe, Emma** is a member of the Cultural Property Protection and Peace UNESCO Chair team at Newcastle University, where she works to support the Blue Shield network. She is the Secretary for UK Blue Shield, and part of the Secretariat for Blue Shield International. Their work focuses on the protection and destruction of cultural heritage during armed conflict, examining the reasons for damage, and developing proactive solutions to protect it, with particular focus on the role of the armed forces, and the place of national and international law.

**Čosić, Natalija** is a senior preventive conservator and cultural heritage researcher with more than ten years of experience in heritage preservation and teaching preventive conservation. Her expertise derives from collection care, conservation decision making, teaching, and assessing conservation processes. Natalija's professional interests relate to the management in conservation, cultural heritage in times of crisis, materiality studies, theory in conservation, and heritage values.

**Čurić, Jelena** graduate 2004 at the School of Applied Arts and Design in Zagreb, with a title Arrangement – scenographer set designer. Same year she got in on Academy of Fine Arts in Zagreb to a five-year scientific-artistic study - Department of conservation and restoration of artefacts - section sculpture. Through her study years she went through a number of different practical parts of the class and did study improvement in Prague at the Akademie výtvarných umění, and also participated in student conferences through Croatia. After finishing Academy of Fine Arts in Zagreb, 2010 she earned a degree with a title Conservator – restorer sculptor. In the same year, 2010, she started working for a conservation-restoration company Ars Verus d.o.o. in Zagreb, where she got more experience and additional education by collaborating on protected projects of the Republic of Croatia. In parallel to her volunteering work on projects at the Ars Verus d.o.o., 2011. She start her one year traineeship at the Croatian Restoration Institute in Zagreb, also working on the most protected projects from biggest importance for Republic of Croatia, and she took the professional exam in the same year for the professional title of Conservator-restorer, field of specialty - wooden polychrome sculpture. After passing the professional exam she got permission to work on the field to preserve cultural assets. She established (with continuing cooperation with the Croatian Restoration Institute and Ars Verus d.o.o.) a private conservator-restorer workshop and started working and leading projects for the preservation and protection of cultural property independently. In 2014 she start working on position secretary of the International Institute for Conservation of Historic and Artistic Works - Croatian group, through which she participate in the organization of international conferences and field trips. In 2015 she took another professional exam and got specialized for a field Paintings on a different layers. She is a member of HRD - <http://www.h-r-d.hr>, ULUPUH - <https://ulupuh.hr/> and HZSU - <http://hr.hzs.hr/>. Trough 2014 she changed her residence and moved to Dalmatia, island Murter where she established another private conservator-restorer workshop and continue to cooperate with the Croatian Restoration Institute and the Ministry of Culture on projects for the protection and preservation of cultural heritage. During all her education until today, she regularly attend professional and similar conferences and professional meetings.



**Desnica, Vladan** is the head of the Laboratory at the Department for Conservation and Restoration of Works of Art at the Academy of Fine Arts in Zagreb. He is the leader of numerous domestic and international scientific and scientific-technical projects. His main research interests are the investigation of nuclear techniques and instrumental methods for the analysis and preservation of cultural heritage objects.

**Di Reda, Tina** was born in Dubrovnik. Completed bachelor and master studies in conservation, at the University of Dubrovnik, majoring in paper conservation. Obtained part of education at Palazzo Spinelli Institute in Florence, Italy and at the Croatian Conservation Institute. Awarded with Magna and Summa Cum Laude diplomas, Rector's Awards, and Top Student. Employed in Dubrovnik libraries. Passed the state professional exam and acquired the title of conservator-restorer. Participated in several gatherings, conferences, workshops and round tables dedicated to the protection of heritage.

**Drewes, Jeanne** was the Chief of Binding and Collections Care in the Preservation Directorate at the Library of Congress in the United States, from June 2006 to October 2019. Previously she was Assistant Director for Access and Preservation at Michigan State University Libraries, and head of Preservation at Johns Hopkins University Library. She is an active member ALA, ICOM, IFLA and AIC. She served as the ALA ALCTS representative on the Preservation and Conservation Section Committee of IFLA from 2006-2011 and as the Library of Congress representative on the same committee. During her time on the committee she was the editor of the *P&C Section Newsletter*, and served as the webmaster. She was the Director for the Regional PAC for North America centered at the Library of Congress. Currently she is elected chair of the Preservation and conservation section standing committee. She is past editor for *ALCTS Monographs* and sits on the editorial board of the international journal *Preservation, Digital Technology & Culture*. She is the co-editor of *Promoting Preservation Awareness* published in 1997 by Greenwood Press. She was the managing editor for the *ALA Risk and Insurance Management Manual for Libraries* which was published in 2005 and for the new edition coming out shortly. She has published and presented widely on the topics of disaster preparedness, recovery, risk management, preservation planning and promoting preservation issues to the public. In 2019 she taught a day long workshop on risk and disaster planning in Slovenia for conservators in all types of cultural institutions.

**Duh, Jelena** finished her master in conservation-restoration of paintings on Academy of Fine Arts in Zagreb, Croatia. She worked as an external conservator-restorer assistant at the Croatian Conservation Institute and a freelance conservator-restorer. Currently she's working as a conservator-restorer of all kinds of paper-based materials in Preservation and Storage Department of National and University Library in Zagreb.

**Dujaković, Tanja** was born in 1985 in Dubrovnik. In 2013, graduated from the University of Dubrovnik, (Art and Restoration Department) and obtained a Master of Arts degree in Conservation and restoration of paper material. In 2018, she obtained a License for the professional title of conservator-restorer, specialty: Library and archival material and works of art on paper. She has participated in numerous national and international art and scientific conferences, professional training abroad, courses etc. Since 2013 she has been employed at the University of Dubrovnik, Department of Art and Restoration, today as a teaching assistant.

**Dumbović, Ana** has completed education in Conservation and Restoration department on Academy of Fine Arts in Zagreb in 2004. She has gained 15 years of working experience from student and private internships to employment in Croatian Conservation Institute on Department of wooden polychrome sculpture from 2005 to 2021. She has attended professional workshops and meetings for conservation surface cleaning, varnishing, retouching, consolidation and reconstruction of wooden support till preventive conservation. She is a member of IIC Croatian Group and Croatian Conservation Restoration Association.

**Filipeti, Antonija** graduated from the Faculty of Humanities and Social Sciences, University of Zagreb, with a degree in Croatian and Italian language and literature, as well as in Library and Information Science. Since 2009 she has been employed at the National and University Library in Zagreb. From 2009 to 2016 she worked at the Preservation Department with the focus on preserving historical newspaper collection. Since 2016 she has been the coordinator of the national Centre for Continuing Education of Librarians and the LIS Collection. She has been participating in professional conferences and has published several professional papers. Her areas of interest are continuing education and lifelong learning of librarians as well as knowledge transfer in heritage protection in that context.

**Fučić, Mario** is a retired conservator-restorer, specialized for sculpture in stone, wood and stucco. He graduated in Fine Arts from Pedagogic College in Zagreb. For almost three decades he worked as conservator-restorer in the Croatian Conservation Institute in Zagreb. There he accumulated a wide range of experience by performing in person, conducting team work and organizing larger scale conservation and restoration works on sites all over Croatia. He contributed in development of special skills during the evacuation of endangered art objects from the war zones during the Homeland War in Croatia.

**Gabriel, Dunja Marija** is library advisor and consultant for public libraries in Croatian Institute for Librarianship (Center for Libraries and Librarianship Development) at National and University Library in Zagreb and organizes biannual Croatian Conference on Public Libraries. She is a member of the Permanent Board for Maintenance and Development of the System of Unique Library Performance Electronic Statistical Data Collecting (<http://hk.nsk.hr>). In the Training Centre for Continuing Education of Librarians in Croatia she holds courses and workshops for Librarians. She is member of Croatian Library Association (CLA), member of Professional Board of CLA, head of Croatian Public Libraries Section and member of Croatian

Section for Library Services to People with Special Needs. She is co-chair of the National Campaign for Persons with Reading Difficulties and Dyslexia „I Wish to Read Too!“ (2016-2021) organized by Croatian Library Association in cooperation with National and University Library in Zagreb and Zagreb City Libraries. She was Standing Committee member of IFLA/LSN Section for Library Services to People with Special Needs and author and co-author of several presentations and papers held on IFLA Conferences and World Library and Information Congresses. She publishes professional and scientific papers, organizes professional conferences and congresses and cooperates with numerous international professional experts to improve the work of public libraries in Croatia.

**Galić Bešker, Irena** is a head of the Manuscripts and Rare Books Collection of the National and University Library in Zagreb. She achieved doctoral thesis in philology so her primary interest is divided between philology, lexicography and bibliography as well. Although she primarily deals with bibliographic description and cataloguing she pays attention to manuscripts and rare books protection as well. She participated in several conferences and workshop in Croatia and abroad.

**Getaldić, Magdalena** was born in 1982 in Zagreb, Croatia. Graduated with Master's Degree in History and History of Art at the Faculty of Humanities and Social Sciences in Zagreb in 2008, at the same Faculty on Department of Information and Communication Sciences graduated Museology in 2013. She works as museum senior documentalist and curator of plaster cast collections in Croatian Academy of Sciences and Arts – Glyptothèque since 2009. From 2017 attending postgraduate doctoral study programme Humanities on Department of History of Art at University of Zadar, Croatia.

**Gilliland, Anne J.** is Associate Dean for Information Studies, Graduate School of Education & Information Studies, and Professor and Director of the Archival Studies specialization in the Department of Information Studies, as well as Director of the Center for Information as Evidence, at the University of California Los Angeles (UCLA). She is a faculty affiliate of UCLA's Centers for Digital Humanities, European and Russian Studies, and for the Study of International Migration. She is a Fellow of the Society of American Archivists and recipient of numerous awards in archival and information studies. She is an Honorary Research Fellow of the Centre for Global Research, RMIT University in Melbourne and also of the University of Liverpool Department of History. Her interests relate broadly to the history, nature, human impact, and technologies associated with archives, recordkeeping and memory, particularly in translocal and international contexts. Specifically, her work addresses recordkeeping and archival systems and practices in support of human rights and daily life in post-conflict settings; the role of community memory in promoting reconciliation in the wake of ethnic conflict; the politics of metadata; and digital recordkeeping and archival informatics.

**Gómez Ubierna, Marta** is a Restorer at the Ministry of Cultural Heritage of Italy and a Ph.D. candidate in the art history faculty at Florence University. Dr. Gómez specializes in heritage and risk management, and stone conservation. Her scholarship has been supported by the Andrew W. Mellon Foundation.

**Heikell, Vicki-Anne** is the Field Conservator with the National Preservation Office, part of the Alexander Turnbull Library's Outreach Services. She provides training and advice in the preservation of documentary heritage items and collections to individuals, groups, iwi/Māori and organisations throughout New Zealand. From 1993-1996 she was a paper conservator at the National Library of New Zealand, and from 1997-2000 National Preservation Officer, Māori. She worked as a self-employed paper conservator from 2000-2004 and then as a paper conservator at Te Papa Tongarewa until 2010.

**Horjan, Goranka** is CEO of the Ethnographic Museum in Zagreb with a huge experience in EU projects focusing on renovation and refurbishment of museums. She graduated in art history and has the doctorate in museology. Between 2000-2014 as the general director of the Museums of Hrvatsko Zagorje she led several museum investments including (building the new Krapina Neanderthals Museum, museum display of Veliki Tabor Castle and project for the refurbishment of the Studio Antun Augustinčić Gallery). In 2015 she started the renovation of the Ethnographic Museum in Zagreb. She has been an active ICOM member since 1997 and was the member of the Executive Council from 2010 to 2016. She has been active in the regional alliance of ICOM SEE since 2006 and chaired the alliance for three years. At the moment she is the Chair of INTERCOM (International Committee for Museum Management), elected during the General Conference of ICOM in Kyoto in 2019. In 2020 she was also appointed the Chair of LEAC (Legal Affairs Standing Committee) by the President of ICOM. She has been active in Europa Nostra and Best in Heritage as the member of the Advisory Board. From 2016 – 2019 she was the Chair of Europa Nostra Heritage Award Jury in the category Education, Training and Awareness-Raising. From 2012 to 2017 she was the Chair of the European Museum Forum Board of Trustees that operates the most prestigious museum award scheme in Europe including European Museum of the Year Award and Council of Europe Museum Prize. She is also a member of ICOMOS and Interpret Europe.

**Hrga, Ivana**, PhD in the field of Aerobiology, University of Zagreb, Faculty of Science (2011). Election at the Faculty of Science, University of Zagreb, to the scientific title of Research Associate in Natural Sciences, field of Biology 2012. Expert at the Croatian Accreditation Agency. Participated and contributed to the COST project ES0603 EUPOL 2008-2011 „Assessment of production, release, distribution and health impact of allergenic pollen in Europe“ and COST Action FA1203 SMARTER 2013-2017 “Sustainable management of Ambrosia artemisiifolia in Europe”. Researcher on the scientific project for the Ministry of Science and Education “The incidence of pollen allergy by spatial units of the Zagreb County”. Author and co-author of numerous professional and scientific papers in the field of aerobiology. Papers of interest can be accessed at link [www.bib.irb.hr](http://www.bib.irb.hr). Management skills in supervising teams and the administering

of daily work practices at the Department of Environmental Protection and Environmental Health. Continuing education in the field of Aerobiology for analysis of pollen and spores in the air.

**Huber, Joachim** was born 1962 in the heart of Europe (Berne, Switzerland) 1985-1990 Studies in History of medieval Art and Architecture 1990-1992 Head of project for the church inventories (concept and setup of the project) 1992-1994 PhD on late 11th c. religious silver smith work 1995-1997 Curatorial assistant at the Historical Museum Basel and at the Swiss National Museum, Zürich. 1997 Co-founder and since partner at Prevart Ltd. (Winterthur, Switzerland). A small museum consultant company which found it's niche in focusing on museum work behind the scene and in exceptional circumstances. Prevart has been involved in the planning of storage facilities of more than 20 football fields in size and the relocation of several 100'000 museum objects. Among the clients are major museums in Switzerland, Germany, Austria and Sweden. Currently Prevart is involved in more than 15 major storage facility projects. Main focus are sustainable and cost efficient infrastructures in the long term run for museums, archives and collections. Together with Karin von Lerber a textile conservator and lecturer in emergency preparedness and emergency response, he has published in 2003 a handbook on handling and storage of mobile cultural objects (in German, still available). Joachim Huber's main interests are the long-term protection of mobile cultural property and the research in sense and non-sense of public and private collecting in times of limited funds and important global issues that affect future generations.

**Jembrih, Zvezdana** is a Professor at the Department of Conservation and Restoration of Works of Art at the Academy of Fine Arts, University of Zagreb. She has a master's degree in field of restoration of wooden sculpture. She is the head of numerous programs for the protection of mobile cultural goods, author of professional articles, lectures and posters in the field of conservation and restoration and protection of material and immaterial cultural heritage. She is a mentor to 17 graduate students. She is the organizer of the exhibition Un/Cured Saints - research and conservation and restoration works on sculptures from the collection of the Diocese Museum, held in Zagreb in 2016.

**Jemo, Danijela** PhD, assistant professor is the head of the Textile Conservation-restoration Workshop at the University of Dubrovnik. Graduated in 2001 from the University of Zagreb, Faculty of Textile Technology. From 2002 to 2007 was employed at the Croatian Conservation Institute, Department for Textiles as conservator-restorer, specializing in textile items. Since 2007 she has been working at the University of Dubrovnik, Department of Art and Restoration where she is teaching textile conservation at the undergraduate and graduate levels.

**Jergović, Matijana** MD, PhD, environmental health specialist, epidemiologist, health manager at Andrija Štampar Teaching Institute of Public Health. She is coordinating health risk assessment, emergency management and risk communication activities. She consults in case of uncompliant analytical results and recommends health measures for prevention

of environmental influences on human health. She gained additional skills through further international environmental health impact and risk assessment trainings: E-learning Training program in Children's Environmental Health, The University of Kansas School of Medicine, Iowa (2006); University of Liverpool, IMPACT online introductory HIA course (2014); IFEH, Environmental health and Disaster Management Course (2015); Health Risk Assessment: Principles and Applications (2016) and Novel methods and approaches in health risk assessment (2017), Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden. She provides expertise in ICT risk assessment and risk communication tools development.

**Jigyasu, Rohit** is a conservation architect and risk management professional from India, currently working at ICCROM as Project Manager on Urban Heritage, Climate Change and Disaster Risk Management. Rohit served as UNESCO Chair holder professor at the Institute for Disaster Mitigation of Urban Cultural Heritage at Ritsumeikan University, Kyoto, Japan, where he was instrumental in developing and teaching International Training Course on Disaster Risk Management of Cultural Heritage. He was the elected President of ICOMOSIndia from 2014-2018 and president of ICOMOS International Scientific Committee on Risk Preparedness (ICORP) from 2010-2019. Rohit has been the Elected Member of the Executive Committee of ICOMOS since 2011 and is currently serving as its Vice President for the period 2017-2020. Before joining ICCROM, Rohit has been working with several national and international organizations such as UNESCO, UNISDR, Getty Conservation Institute and World Bank for consultancy, research and training on Disaster Risk Management of Cultural Heritage.

**Jović, Svetlana** has over twenty years of experience working in politically sensitive and institution building environments serving for United Nations peacekeeping operations and diplomatic missions in countries affected by conflict or protracted crises (Rwanda, Kosovo, Lebanon). Her work was related to protection, conflict resolution, political negotiations and mediation, civil-military coordination, rule of law, human rights. Since 2015 she is engaged in promoting and building capacity in Culture Property Protection within peacekeeping context and raising awareness on importance of protection of heritage sites in Lebanon, in cooperation with Blue Shield International. Currently, Ms Jovic is deployed in United Nations Interim Mission in Lebanon (UNIFIL) as Senior Civil Affairs Officer, where she manages a field office undertaking programmatic tasks in support of restoration of state authority, building national capacity in good governance, inter-agency coordination, development of programmes promoting stability under UN Peace and Security Agenda. Ms Jovic has an LL.M from University of Zagreb, Faculty of Law (1985) and Judicial Exam (1990).

**Kalinić, Pavle** was born in 1959 in Zadar. He graduated from the Faculty of Political Science of the University of Zagreb in 1982. In 1985, he received his master's degree in International Relations. He worked as an Assistant Professor at the University of Political Science from 1986 to 1987, and at the College of Technical Science from 1987 to 1991. In 1989-1990, as an assistant at the Faculty of Political Science, he participated in the scientific project "Characteristics of Political Behavior in the Region". In 1989 he founded Fokus, the first independent magazine

in Croatia, which was published until the end of 1990. In 1991, he participated in the Croatian War of Independence as an army officer. He underwent medical treatment in the US after being wounded on the battlefield. He resided in the United States the following two years, returning to Croatia in 1994. He worked for the Croatian Helsinki Committee for Human Rights in 1994 and 1995. In 1997, he became a member of the Zagreb City Assembly, as well as a member of the Croatian Parliament in 2000. During 2004 and 2005, he was the director of Profil International, the largest book publisher and retailer in Croatia. In 2006, he became head of the Department of Education, Culture and Sports in Zagreb; since 2006, he is the head of the Zagreb Office of Emergency Management. He is the initiator of the postgraduate study "Crisis Management" at the University of Zagreb.

**Kartelo, Filip** is a graduate student at the Faculty of Humanities and Social Sciences, University of Zagreb, Department of Information and Communication Sciences and Department of Sociology. Upon completion of student internship during crisis at the Institute of Art History, he continued as volunteer.

**Katuščin-Ražem, Branka** PhD, was a scientist and one of the founders of radiation technology in Croatia. She was interested in the chemistry of radiation and the chemistry of free radicals, as well as the applications of gamma radiation processing for food and especially for the preservation of cultural heritage. Her special contribution was in the protection of cultural heritage during the Homeland War in cooperation with the Croatian Restoration Institute. She is now retired. Dr. sc. Ražem spent his whole career and leaderships at the Radiation Chemistry and Dosimetry Laboratory (RCDL) at the Ruđer Bošković Institute in Zagreb. His research has been associated with all aspects of the effects of ionizing radiation on matter: radiation chemistry, dosimetry and technology. His work at the RCDL has been recognized through the research of potential applications of irradiations. The establishment of radiation technology in Croatia is certainly one of the biggest contributions of Dr. sc. Ražem. Thanks to his research we are successfully implementing today radiation disinfection in the service of conservation of objects of cultural and artistic heritage.

**Kodrič Kesovia, Mateo Miguel** is employed since 2013 at the Art and Restoration Department, University of Dubrovnik and completing PhD study in Textile Science and Technology at the Faculty of Textile Technology, University of Zagreb. Textile conservation-restoration specialized at the Institute for Art and Restoration in Florence, Institute of Conservation in Vienna and at the prestigious Abegg Stiftung in Riggisberg, Switzerland. His scientific interests include history of textile technology, technical analysis, virtual reconstruction, methods of reproduction and digitization of historical textiles.

**Kojan Goluža, Kristina** was born in Dubrovnik, Croatia in 1979. She gained an MA degree at the University of Art and Industrial Design, Linz in Austria, at the department of ceramics. During her studies she was awarded a grant from the Austrian ministry of education, science and culture as one of the best foreign students. She gained her 2nd MA in Conservation and



restoration of historical and archaeological heritage at the University of Applied Sciences, Berlin in Germany. In 2013 at Academy of Fine Arts in Zagreb (Croatia) she gained her PhD. She participated at several symposiums and workshops abroad. An important part of her education were professional training programmes for conservation and restoration of ceramics at Istituto per l'Arte il Restauro Palazzo Spinelli, Florence, University of Applied Arts, Vienna and at Römisch-geramisches Zentralmuseum, Mainz. Since 2006 she has been employed at Department of Arts and Restoration, University of Dubrovnik where she is currently an assistant professor. She teaches courses in a field of ceramics covering technology, history, and conservation and restoration of this medium. In 2019 she received an "Award for special achievements in teaching and working with students in the academic year 2018/2019," by her home institution. She was collaborating on syllabus for the partner institution- the Faculty of Applied Arts at Cetinje, Montenegro for setting up a new module for conservation of ceramics. Through Erasmus+ Program she held lectures at the University for Applied Arts, Institute for nature studies in conservation Vienna (2017 and 2020) and through CEEPUS programme she held a lecture at the University of Fine Arts Jan Matejko, Krakow in Poland (2019). She organised several workshops, lectures and round tables on historic Dubrovnik roof tiles Kanalica, which is her research interest. Kristina is fluent in English and German.

**Kokeza, Ivan** was born in 1992 in Split. He received his MA in Art History and History from the Faculty of Humanities and Social Sciences, University of Split. He spent the winter semester 2015/2016 at the Adam Mickiewicz University in Poznań. He is a doctoral candidate at the Postgraduate Doctoral Study Programme in Art History at the Faculty of Humanities and Social Sciences, University of Zagreb (since 2016). He now works at the Croatian History Museum in Zagreb as a trainee curator.

**Kovaček, Ivančica** MD, PhD, specialist of microbiology with parasitology, she studied at Faculty of Medicine, University of Zagreb, Postgraduate study biology and biomedicine at the Faculty of Natural Sciences and Mathematics in Zagreb and Postgraduate study in Medical microbiology with parasitology at the Faculty of Medicine, University of Zagreb. She is active member of professional bodies: Scientific Committee on Biological Hazards of the Croatian Food Agency, Croatian Microbiological Society, Commission for Evaluation of the Good Hygiene Practice Guide and HACCP for Restaurants at the Ministry of Health and Member of the Committee for the Preparation of the Microbiological Food Criteria for Ready Meals at the Ministry of Agriculture. She is Head of Division for Microbiological Analysis of Food and Objects of Common Use at Department of Environmental Protection and Health Ecology, Andrija Štampar Teaching Institute of Public Health.

**Kozjak, Igor** was born in 1982. He attended the Faculty of Chemical Engineering and Technology in Zagreb on which he graduated in 2006. With the thesis: "The impact of hydrolytic and UV degradation on properties of leather used for restoration". Since 2006 he has been working at Croatian State Archives in Zagreb, at first as a conservator-restorer, and since 2009 as the Head of the Bookbindery Department at Central Laboratory for Conservation and Restoration.



**Krišto, Ivana** (City Office of Emergency Management at City of Zagreb) PhD (University of Zagreb, Faculty of Philosophy in Zagreb) and Master's degree (University of Zagreb, Faculty of Organization and Informatics in Varaždin) in the scientific field of information sciences and communication. 13 years of working experience in the field of occupational safety and health of health, after which she expanded her interest and professional career and continued her professional career in the field of civil protection. Winner of the National recognition for achievements in the field of occupational safety and health, Vice-president of the European Society of Safety Engineers, lecturer at the The Faculty of Metallurgy (University of Zagreb) in the field of OSH and the Working Environment, external associate in Croatian Institute of Kinesiology, active participant in scientific and professional conferences, author and co-author of scientific and professional papers and manuals. Since 2018 employed in City of Zagreb, Emergency Management Office.

**Krstić, Dragica** is the Head of the Preservation and Storage Department at the National and University Library in Zagreb with long-standing and wide-ranging experience in the field of heritage protection. She graduated in Chemical Engineering and Technology from the University of Zagreb, where she also obtained her doctorate degree in Information and Communication Sciences. Her professional experience includes working as a paper conservator and restorer at the National and University Library in Zagreb, conservation chemist at the Croatian Conservation Institute and lecturer at the Arts Academy, University of Split. She was formerly the Head of the Natural Science Laboratory at the Croatian Conservation Institute, during which period she specialised in deterioration diagnostics and conservation treatment evaluation. Through her current research interests in the field of preservation and conservation of material cultural heritage she especially focuses on management issues and the relation in which heritage protection stands with community needs. Her most recent activities have been in the field of disaster risk management and heritage protection in cases of various emergencies, in which context she organised many workshops, training courses, seminars and an international conference, and is currently working on the development of guidelines for the protection of library resources under the conditions of crisis.

**Kursar, Petra**, senior conservator restorer, and her specialisation are paintings on different supports. After finished Master degree of Painting on Academy of Fine Arts in Zagreb in 2004., I have started working in the field of conservation and restoration. So my further step was gaining Master of Art degree in Conservation and Restoration on Academy of Fine Arts and Design in Ljubljana with theme: "Consolidation of painted layers on canvas and wooden support". My working experience has started in Croatian Conservation Institute, where I have been employed from 1996 till 2008. From 2008 I am working as Head of Conservation Department in Modern Gallery. Through last 15 years I have attended numerous professional workshops, seminars and conferences. I am member of IIC Croatian Group, Croatian Conservation Restoration Association and Croatian Society of Fine Artists.

**Lima, Leni** is the director of the Technical-Scientific Communication Service at the São Paulo State Forest Institute and has expertise in communication, graphic projects and publishing of printed and digital materials. She is a M.Sc. student inside the Nuclear Technology Program at the Nuclear and Energy Research Institute -IPEN. She obtained her B.Sc. in communication sciences (1989) and specialist in graphic design at Anhembi Morumbi University (2005). She has experience in theory and practice in public enlightenment using multimedia at Okinawa International Center, Japan (2007) and in cultural heritage conservation treatment. She is a researcher in a project of cultural and scientific heritage for preservation of botanical samples in herbaria using ionizing radiation processing.

**Lončar, Sanja** is an Assistant Professor at the University of Zagreb, Croatia. Her educational background is in Art History, Ethnology and Cultural Anthropology (University of Zagreb), and International Architectural Regeneration and Development (Oxford Brookes University, UK). Her scientific and professional interests include interdisciplinary built and nature environment research, preservation and protection of cultural heritage, regeneration and development in urban and rural context.

**Lowry, James** is based at the City University of New York, where he is an assistant professor at the Queens College Graduate School of Library and Information Studies and director of the Archival Technologies Lab. He recently completed an international survey of archival claims for the International Council on Archives. His recent publications include the edited collection *Displaced Archives* (Routledge, 2017) and another collection, *Disputed Archival Heritage*, is forthcoming.

**Ludwig, Bert** PhD, born in Germany, studied heritage studies in Germany and Czech Republic. After his studies he worked at heritage administrations on local, regional and federal state levels. Later he moved to the non-profit sector and worked at various non-governmental organisations in the fields of heritage, intercultural education and civil society involvement in Germany and on European level. Since several years he is the director of European Heritage Volunteers. He has been involved in the development and the implementation of the European Heritage Volunteers Programme which offers all over Europe volunteering projects and training courses for young heritage professionals and heritage-dedicated amateurs in the fields of heritage conservation and awareness raising for cultural heritage.

**Lungu, Ion Bogdan** works at IFIN-HH (Romania) as a scientific researcher and chief operator of the industrial irradiator, since 2013. He conducted studies on the influence of the irradiation treatment on the mechanical properties of different materials such as leather, paper, parchment, wood, or rubber, with studies published in national/international journals and participations in international conferences.

**Ljubić Tobisch, Valentina** finishes her studies of conservation and restoration of objects at the University of Applied Arts Vienna. In 2003, she began working at the Technical Museum Vienna, where she was the head of the conservation department from 2005 to 2017. In 2019, she completed her PhD at the Institute for Physical Chemistry at the University of Vienna,

in the subject area of electroplating and photo reproduction processes around 1840. In 2013, Valentina received the science prize TÜV Austria for the development of a museum-related strategy for handling the hazardous substance asbestos. She currently works as a freelance conservator-restorer and consultant.

**Malešič, Jasna** began to work at the National and university library of Slovenia in 2001 as researcher in the field of conservation science. She received her PhD at the University of Ljubljana, Faculty for chemistry and chemical engineering in 2005. From 2005 until 2017 she was head of Conservation and Preservation department of the Library. In 2017, she joined Research and Development Division as responsible person for the preservation of library materials and researcher in the field of conservation science. She is author of several publications in the field of preservation/conservation of library materials.

**Marrion, Chris**, PE, F-SFPE is the Founder of Marrion Fire & Risk Consulting, President of ICOMOS's International Scientific Committee on Risk Preparedness, and past Board Member for US-ICOMOS. Chris holds a Master's Degree in Fire Engineering, is a Special Expert for NFPA, a Board Member of the National Fire Heritage Center, and an SFPE Fellow. Chris specializes in protecting our cultural heritage from disasters/climate change. His work focuses on providing riskinformed, cost-effective prevention/mitigation, emergency response and recovery strategies to protect our cultural heritage from disasters/climate change and impacts of climate change. For over 30 years he has worked with numerous NGO's, Government entities, private and public clients, including to incorporate the need to protect cultural heritage into global disaster management framework documents including the 'Sendai Framework for Disaster Risk Reduction', as well as helping to create awareness, build capacity, and provide practical guidance regarding protecting our cultural heritage.

**Marušić, Katarina** obtained her B. Sc. Diploma in 2004 from the Faculty of Chemical Engineering and Technology, University of Zagreb. In 2010 she obtained a PhD on the subject of protection of cultural heritage made of patinated bronze by non-toxic inhibitors at the same faculty under an international co-mentorship between the University of Zagreb and University Pierre and Marie Curie in Paris. Since 2014 she has been working as a research associate at Ruđer Bošković Institute in the Laboratory for Radiation Chemistry and Dosimetry. She is working in the fields of material science, radiation chemistry and electrochemistry. Among her topics of expertise is application of radiation technology for preservation of cultural heritage.

**Matulić Bilač, Žana** completed Classical Secondary School and in 1991 graduated in Visual Culture at the University of Split. She is now completing her PhD in Art History at the University of Zadar. Since 1990 she has been working on research, conservation of easel paintings and polychrome wooden artefacts. From 1995 to 2006 she was employed at the Ministry of Culture, Split Conservation Department, for the last ten years as head of the Department's restoration workshop. Since then she has been a senior conservator-restorer consultant at the Croatian Conservation Institute. At the Conservation-Restoration Department of the Art Academy

in Split, established in 1997, she has been one of the programme's founders, organizers and lecturers, and is currently engaged as a professor. She has cooperated with a number of Croatian and international colleagues, mentored many young restorers and, as a teacher, engaged students in her projects, thus adding a new dynamic to the demanding educational process in the field of conservation. Some of the most important among the dozens of works she restored are the Romanesque crucifix from the Basilica Euphrasiana in Poreč; an early-Gothic painted crucifix in the church of St Andrew in Čiovo, a Gothic polyptych by Dujam Vučković on Čiovo, as well as works of art in the Split Cathedral to which she dedicated fifteen years of continuous research, restoration and conservation: the high altar, wooden seal over St Domnius' altar, Romanesque choir stalls and the wooden entrance doors by Andrija Buvina. In 2001, as member of a group of authors, she received the Croatian national annual award 'Vicko Andrić' for highest achievements in the protection and restoration of cultural heritage. She has been a Council member of IIC – Croatian Group since 2009, and from 2020 has headed the group. She researches medieval art techniques in Dalmatia, publishing scientific papers, organizing and giving public lectures and leading conservation and research projects with the international selection of experts she coordinates.

**Meštrić, Valentina** graduated with honors from the Academy of Fine Arts in Zagreb. Her thesis was to investigate the *Influence of gamma irradiation on paint layers*. She is also interested in the chemical and physical process of degradation of paint layers caused by metal salts from pigments and oils for which she was awarded the Rector's Award. She is currently working at the Academy of Fine Arts in Zagreb as an external associate.

**Mihaljević, Branka** is a Senior Research Associate in the Ruđer Bošković Institute, Division of Material Chemistry. She is a Head of Radiation Chemistry and Dosimetry Laboratory. During her professional career, she was a leader of several domestic and international scientific projects as well as industrial projects. Her main research interests are the study of ionizing and non-ionizing radiations and their damaging effect on certain biomolecules. She has been investigator in a number of studies on the nature and fate of the reactive short-lived species formed under controlled conditions in the radiolysis/photolysis. Research interests in radiation chemistry can be grouped into several narrower research fields: (1) applications and evaluation of analytical methods for lipid peroxidation products determination; (2) free radicals-induced modifications of lipids; (3) characterization of reactive intermediates in the photochemical reactions with biological significance; (4) kinetics and mechanisms of reactions of short-lived reactive species; (5) the development and application of time-resolved irradiation techniques; (6) research of potential applications in different industries. B. Mihaljević is a person responsible for the application of gamma radiation for the purpose of biological decontamination of cultural heritage objects and sterilization of medical and pharmaceutical products. B. Mihaljević was a supervisor for several Diploma theses PhD theses, also teaches Radiation chemistry at postgraduate level in Chemistry at the University of Zagreb, Faculty of Natural Sciences and Mathematics. Her scientific results have been published in over 140 papers, also 90 conference abstracts and 2 book chapters.

**Mijatović, Jovana** is archaeologist and educator in the field of cultural heritage, a long-time associate of the Belgrade City Museum and other institutions in the field of children's educational programs, which foster creativity and raise awareness of the values of cultural heritage and the importance of its preservation. Internationally, have participated in numerous programs of the International Center for the Study of the Conservation and Restoration of Cultural Property - ICCROM, and have been one of ICCROM's consultants for the First Aid to Cultural Heritage in Times of Crisis program, in connection to which I have coordinated the implementation of the project B-CARE: Balkan Cultural Aid Response for Emergencies, intended to train a network of volunteers to protect cultural heritage in the Balkans. Within the organization Kulturnaut – centre for creative youth and children, engaged in designing and realization of creative workshops for children of school age on the topic of cultural heritage. Within the Urban Development Center responsible for the coordination between schools at the project Heritage Hubs.

**Milinović, Majda** was born in 1991 in Osijek. In 2015, she graduated from the study of Music Pedagogy at the Academy of Arts and Culture in Osijek and obtained a master's degree in music pedagogy. In the same year, she was employed at the Academy of Arts in Osijek as an assistant. As an exhibitor, she participates in scientific conferences, holds professional workshops and lectures, publishes scientific papers and improves her artistic, scientific and professional development in the country and abroad.

**Milošević, Sanda** graduated in 2004 from the Faculty of Humanities and Social Sciences in Zagreb with B.A. in Art History and Archeology. In 2004 she started to work in the Croatian Conservation Institute in Zagreb in the Department for Easel Painting and acquired professional qualification as a conservator-restorer. After three years, resumes carrier in the Section for Movable Heritage Documentation as a senior conservator, art historian. In 2016 obtained a Ph.D. from the Department of Information and Communication Sciences at the Faculty of Humanities and Social Sciences. From March 2020 works at the Ministry of the Interior, Civil Protection Directorate, Sector for Disaster Risk Reduction, Critical Infrastructure and Cultural Heritage Department. Periodically gives lectures or presents a paper for professionals and the interested public on the international or domestic conferences. She has more than 15 years of professional experience in the protection of cultural heritage, in practice, and documentary sense.

**Mimica Tkalčec, Marijana** is a senior conservator-restorer in the Croatian State Archives in Zagreb at the Central Laboratory for Conservation and Restauration. She works on conservation and restoration of archival and library material as well as works of art on paper and parchment. She has graduated at the Faculty of Chemical Engineering and Technology, University of Zagreb. She received her PhD in 2019 from the Department of Surface Engineering of Polymer Materials, Faculty of Chemical Engineering and Technology, University of Zagreb, with the dissertation topic "Impact study of hydrolytic, thermal and UV ageing on the properties of paper for restauration". Throughout the years of her work at the Croatian State Archives, she

gained a vast experience in the field of conservation and restoration. Her major preoccupation was research of the adhesive layer influence on restoration paper stability under the accelerated ageing process. During the last ten years she participated at numerous national and international conferences, held workshops and student educations.

**Mišerda Bajić, Marijana** head of the Department for EU Funds in the City of Kaštela, where she has been working since 2013. Experience in the preparation and implementation of projects co-financed from EU funds in the field of public purposes and cultural heritage. Completed postgraduate studies in economics in Split.

**Mišetić, Martina** graduated in Ethnology and Cultural Anthropology and Czech Language and Literature at the Faculty of Philosophy, University of Zagreb. Since 2017, she has been employed as the director-curator of the Cvelferije Museum. She is a postgraduate student at the Doctoral School of Cultural Studies at the J. J. Strossmayer University in Osijek.

**Mladinov, Maja** has been working as a librarian in the Croatian History Museum's Library since 2011. She completed her studies in Anthropology and Information sciences, majoring in librarianship, in 2011 (Faculty of Humanities and Social Science in Zagreb). In 2019 she co-authored a paper on the impact of users on business processes of the Croatian History Museum and its Library.

**Moise, Valentin** is a Physics Engineer with a PhD in Physical Chemistry. He worked almost 25 years in Romania in the radiation processing field and now is leading the IRASM Radiation Processing Center of "Horia Hulubei" National R&D Institute for Physics and Nuclear Engineering. IRASM is the first and the only industrial irradiator in Romania, working mainly for radiation sterilization of medical supplies and pharmaceuticals but from more than 15 years have an increasing number of requests for radiation treatment for disinfection of materials from cultural area. Valentin's PhD thesis is related to preservation of cultural heritage preservation, he holds an Expert License from Ministry of Culture and IRASM team was leading several R&D projects for the study of gamma radiation effects on CH materials: wood/polychrome wood, paper, leather, etc.

**Montoya, Robert D.** is an Assistant Professor in the UCLA Department of Information Studies, School of Education and Information Studies; Director of UCLA's California Rare Book School, and Director of the UCLA Library, Ethics, and Justice Lab. His research trajectory has generally focused on information representation and positionality; critical, ethical, and justice-oriented LIS work; public libraries; and international library development. He received his Ph.D. from the Department of Information Studies at UCLA; a M.L.I.S. with a specialization in Rare Books, Print and Visual Culture from UCLA, and a M.F.A in Creative Writing from Antioch University, Los Angeles. His work has been funded by the National Science Foundation, Smithsonian National Museum of Natural history, U.S. State Department, U.S. Embassy, Kosovo, and the National Library of Kosovo.

**Moriarty, Lizzy** spent twelve years developing the Natural History Museum's international touring exhibitions portfolio, followed by four years with the British Museum managing the Museum's international engagement activities. Now, as a freelance Museum Consultant, Lizzy is working with diverse organisations including: Cultural Innovations, a leading international, cultural and heritage consultancy dedicated to the visioning, planning and development of museum and cultural heritage experiences; Nottingham University in developing training programmes in museum management in China and two projects with Wellcome Trust where she was a Learning Partner for a major new public engagement initiative and carried out a strategic review of WellcomeCollection's Touring Exhibitions programme. With regards to international cultural diplomacy, Lizzy has supported the Southbank Centre in the development of their international strategy to ensure that resources were matched to the Southbank Centre's strategic objectives.

**Nagai, Maria** is a researcher and conservation specialist at the University of Sao Paulo - USP. She obtained her M.Sc. in Nuclear Technology Applications at the University of São Paulo – USP. She works with preservation of cultural heritage collections. She has experience in the conservation of institutional collections, with emphasis on disinfection of tangible cultural heritage objects by ionizing radiation, collections and conservation of works on paper and photographic films. She is currently is a PhD student in the Nuclear Technology Graduate Program at Nuclear and Energy Research Institute-IPEN at University of São Paulo - USP.

**Negut, Constantin Daniel** received his PhD in Physics from the University of Bucharest, Bucharest, Romania, in 2011, with a thesis on Electron Paramagnetic Resonance spectroscopy study of gamma radiation induced defects in solids. In 2003, he joined IRASM Radiation Processing Department of HORIA HULUBEI National Institute of Physics and Nuclear Engineering, Magurele, Romania. His main area of research is related to the various applications of gamma irradiation effects on materials, such as dosimetry, material properties enhancement, detection of irradiated food, or disinfection of artefacts. He was involved in many national and international research projects related to the use of ionizing radiation for the investigation and preservation of artefacts, such as COST Action IE0601 “Wood Science for Conservation of Cultural Heritage” or IAEA CRP F23032 “Developing Radiation Treatment Methodologies and New Resin Formulations for Consolidation And Preservation of Archived Materials and Cultural Heritage Artefacts.” His research activity has been focused on the effect of irradiation on the functional and decorative properties of the artefacts and the postirradiation effects of radiation induced free radicals in sensitive materials such as paper. In a series of experiments, he showed that at absorbed doses (lower than 10 kGy) used for the treatment of bio-deteriorated paintings, colour changes induced by gamma irradiation are insignificant for historical pigments and binders.



**Nekić, Dunja** (Sisak, 1984) studied Art History and English Language and Literature at the Faculty of Humanities and Social Sciences in Zagreb. Since 2010 she has been working at the Museum of Arts and Crafts in Zagreb where she heads the Collection of Old Photography. Alongside curatorial work and exhibition projects, she worked as a Project Officer on EU projects concerned with digitalization of cultural heritage (*Partage Plus, Athena Plus, Art Nouveau Danube, Made-In*).

**Oliveira, Maria J.A.** is a researcher and Post-Doc at the Nuclear and Energy Research Institute - IPEN. She obtained her MSc in 2008 and her PhD in 2013 in polymeric biomaterials at the University of São Paulo - USP. In 2014, her PhD thesis related to polymeric hydrogels for drug release for the treatment of cutaneous leishmaniasis was elected as the best national and awarded by the Brazilian development agency CAPES. She has great research experience in the development of polymeric biomaterials for the health area including hydrogels with silver nanoparticles for the treatment of wounds, burns. Currently, she is working on the developing of nanostructured hydrogels obtained by ionizing radiation for cleaning and decontamination of surfaces focusing specially on cultural heritage artifacts and archived materials.

**Oluwafemi, Oni** currently works full time with a telecoms firm- China International Telecommunications Construction Corporation (CITCC) Nigeria Limited. Prior to this, he has worked in several private businesses as Business Development/Research Executive. He has over nine years continuous experience as Business Development/Research Executive. He also lectures part-time at the GNS Department of Lagos City Polytechnic, Ikeja, Nigeria. He engages in writing activity as a pastime activity. He has contributed several insightful articles on topical issues on the back page of The Nigeria's Guardian Newspaper. He has also presented papers at both national and international conferences. He is passionate about issues on Africa studies.

**Orešković, Marko** was born in 1984 in Požega. He graduated in 2009 at the University of Zagreb, Faculty of Organization and Informatics. In 2019, at the same faculty he obtained PhD in a field of Information technologies. He currently works as a Head of Information Technology department at the National and University Library in Zagreb. His fields of interest are software engineering, data analysis and database modeling.

**Quaedvlieg-Mihailović, Sneška** has been working for Europa Nostra for more than 25 years. In 2000, she was appointed as Secretary General. In this capacity, she works closely with EU institutions, the Council of Europe, the UN, UNESCO and other international and European governmental and non-governmental bodies on heritage matters. Since the creation of the European Heritage Alliance 3.3. in 2011, she acts as the Coordinator of this informal platform of European and international networks active in the wider field of heritage. She played a prominent role in promoting the 2018 European Year of Cultural Heritage (EYCH) and actively contributed to the EYCH Stakeholders Group. She is a regular speaker at European conferences and meetings on cultural heritage and is author of numerous articles on Europe and cultural



heritage. She has also contributed to the preparation of the European Report “Cultural Heritage Counts for Europe” (2015). Sneška Quaedvlieg-Mihailović obtained a degree in International Law in Belgrade (former Yugoslavia) and in European Law and Politics in Nancy (France). Prior to joining Europa Nostra, she worked for EU Institutions in Brussels and then for the European Commission Delegation in Belgrade. In 1991, she was one of the founders and the first Secretary-General of the European Movement in Yugoslavia.

**Pavić, Mirta** is the Head of the Conservation Department of the Museum of Contemporary Art (MSU) in Zagreb, Croatia. She received her M.A. in Conservation from the Academy of Fine Arts and Design, University of Ljubljana. She is a member of the ICOM-CC working group Modern Materials and Contemporary Art and the IIC. Since 2014 she has been a coordinator of the Conservation Section and a member of the Executive Committee of the Croatian Museum Association (CMA). Mirta's research interests include modern materials, modern museum practice, and the educational mission of the field of conservation. She is the creator of two short documentaries about the conservation of contemporary art that were broadcast on Croatian national television. Mirta also teaches a course on modern and contemporary art conservation at the Conservation Department of the Arts Academy, University of Split and is a visiting lecturer at the Academy of Fine Arts and Design in Ljubljana.

**Piacentini, Veronica** architect – Civil Protection Officer at the Italian Civil Protection Department, Presidency of the Council of Ministers. PhD in Technology and Management of Cultural Heritage. Expert in safeguarding cultural heritage against risks. ICORP member. Mainly active in prevention/preparedness and response activities related to the protection of movable and immovable cultural heritage at risk of disaster. She has been involved in the organization of national and international training courses addressed to volunteers, technical experts and professionals. She contributed to the creation of national minimum standards and operative recommendations for developing training programmes on the protection of cultural heritage during emergency. She participated in developing specific scenarios dedicated to protect vulnerable cultural heritage in many national and international exercises (i.e: Vesuvio and Campi Flegrei ex 2018 on volcanic risk – Belice ex 2018 on seismic risk – Valdirex 2018 on flood risk; North Italy ex 2013 on seismic risk; Promedhex in 2018 on seismic risk; Twist 2013 on tsunami risk; Terex 2010 on seismic risk). She has been involved in national emergencies (i.e: Abruzzo earthquake in 2009; Central Italy earthquake in 2016-17) with the specific role of managing and safeguarding cultural heritage activities within the National Command and Control Center activated by the Italian Civil Protection Department in the affected areas. She participated in many EU-funded projects, by supporting the reinforcement of cultural heritage resilience in disaster risk management processes (PROOFH project 2007-2008; PATCH in 2009-2010; PROMEDHE project 2016-2018; PROCULTHER project 2019-ongoing).

**Pikić, Aleksandra** holds a PhD in information and communication sciences (2015). She gained a title of library adviser and of research associate in 2018. Her professional experience was obtained at the Rudjer Boskovic Institute library, Library of the Institute of Economics in Zagreb and the Library of Faculty of Humanities and Social Sciences (University of Zagreb). Currently she works as a national library adviser for higher education and special libraries in Croatian institute for librarianship of the National and University library in Zagreb.

**Pilon, Viktorija** was born in 1998 in Požega, Croatia. After finishing Natural Sciences – Mathematics Gymnasium in Požega she enrolled in University of Dubrovnik, Department of Art and Restoration where she chose the course of conservation and restoration of textiles. She graduated with bachelor's degree in September 2020. She has participated in various projects organized by the Department of Art and Restoration and Textile conservation and restoration workshop. She is currently enrolled in a masters degree in textile conservation and restoration at the University of Dubrovnik.

**Počuča, Ratko** was born in 1975 in Rijeka. He graduated Information science and Linguistics in 2009 at the University of Zagreb, Faculty of Philosophy. He currently works as System administrator in Information Technology department at the National and University Library in Zagreb. His fields of interest are computer hardware, data storage, supercomputing and AI.

**Polić, Damjan** was born in 1986 in Dubrovnik, Croatia. Studied conservation at the University of Dubrovnik and obtained master's degree majoring in paper conservation. Obtained part of education at the Croatian Conservation Institute and in Palazzo Spinelli Institute in Florence, Italy. Awarded with Magna Cum Laude diploma. From 2010 employed in Dubrovnik libraries and in that time participated in numerous conferences and workshops dedicated to the cultural heritage protection and preservation. Passed the state professional exam and acquired the professional title of conservator-restorer.

**Podany, Jerry Charles** joined the Department of Antiquities Conservation at the J. Paul Getty Museum (California) in 1978, serving as Department Head/Senior Conservator from 1984 until his retirement in 2016. He was elected for two terms as President of the American Institute for Conservation (1999-2003) and for two terms as President of the International Institute for Conservation (2006-2012). Mr. Podany continues to consult, lecture, and publish internationally on earthquake damage mitigation for collections and on emerging social and technological issues that affect the future sustainability of heritage preservation. He developed a series of conferences in Turkey, Greece, Japan, Italy and China addressing the protection of collections from earthquake damage in each of those countries. Mr. Podany is the author of *When Galleries Shake* (Getty, 2017).

**Požgaj, Juraj** received a master's degree in political science at the Faculty of Political Science, University of Zagreb in 2018. Worked as a project assistant in the Friedrich Ebert Foundation Regional Office and as a parliamentary assistant in an MdB Office in Berlin. He is currently working at the Volunteer Center Zagreb as a coordinator of the Info Office, Zagreb Volunteer

Network and development projects. *Main projects: School Volunteer Community - Incentive for Sustainable Development*, funded by the Swiss-Croatian Cooperation Programme and Radius V, funded by the European Social Fund.

**Raguž, Paula** was born in Dubrovnik. Obtained Masters degree in English language and Museum studies in 1998, additional Masters in Library science in 2009. Employed in Dubrovnik libraries since 2007. Works in the Research Library at various tasks, among others digitalization and cataloguing older library materials. Currently Head of the Research library.

**Radin, Marija** is an expert associate for documentation in The Central Institute for Conservation. She is in charge of documentation management, primarily database for managing conservation documentation. Also, she is involved in different projects such Protection of Movable Cultural Heritage in Times of Crises, Recommendations for Creating and Managing Digital Photographic Documentation of the Cultural Heritage and Workshops in Preventive Conservation for Museum Professionals in Serbia and South East Europe region.

**Reberski, Marija** was born in Zagreb, where in 2003 she graduated from the Academy of Fine Arts - Department of Conservation and Restoration. Until 1993, she was the head of the design studio at Luna Film and worked on graphic design projects, video animation, subtitle production, video and film projects. She is also the author of several animated films. In 1989, she became a permanent member of the HZSU. Since 2001, she has been working on conservation-restoration projects. She is a cofounder of Atika, Zagreb in 2006, and in 2015 she opened her own restoration workshop.

**Ronchini, Chiara** obtained her Master of Architecture from the University of Ferrara, Italy, in 2009, specialising in urban planning and the sustainable management of historic centres. She also studied in the Netherlands, Finland and Czech Republic. She has been a Chartered British Architect since 2014. As Policy Manager at Historic Environment Scotland, she plays a key role in delivering a successful strategy and policy development function within the organisation. She's leading on the development and implementation of Futures Thinking and Service Design approaches to policy development in a variety of thematic areas, such as Climate Change, Sustainable Tourism, Inclusive Growth, Culture, Innovation and Communities. Her recent work has focused on improving existing and developing new strategy and policy frameworks, especially around emergency responses. She has worked for Historic Environment Scotland since 2014, when she started as Project Manager for Scotland's Urban Past – a nationwide community engagement programme about the heritage of Scotland's towns and cities. She also worked as a project manager with Edinburgh World Heritage for over five years and as a consultant on sustainable heritage management for UNESCO in Uzbekistan, Egypt, Croatia and Italy. Her life passions are people and heritage. She is currently a member of the ICOMOS – International Scientific Committee on Energy and Sustainability and sits on the Responsible Tourism Institute Scientific Council, an international advisory body concerning tourism sustainability, social responsibility and other key fields of sustainable development.

**Rusković Radonić, Antonia** is a director of the Museums and Galleries of Konavle. She enrolled Faculty of Humanities and Social Sciences in programs of Indology and Philosophy in 1992, and Academy of Fine arts in Zagreb in 1995 where she specialized in Painting. Simultaneously she was engaged in different programs of researching and preserving intangible heritage of the region of Konavle. She is the author of numerous exhibition catalogues and the book of traditional Konavle embroidery patterns „Za dva pro dva“. This book was the base document for art of making Konavle embroidery to be listed as a protected national cultural heritage of the Republic of Croatia.

**Sambolić, Ivana** is a senior conservator-restorer at The Croatian Restoration Institute, specializing in paintings on various surfaces. She graduated in 2006 at The Academy of Fine Arts Zagreb, Conservation-Restoration Department. She received Rector's Award of University of Zagreb, Praise of the Academic Council of Academy of Fine Arts in Zagreb and Research Fellowship at The Akademie výtvarných umění Praha in 2006. In 2007 she completed research at Technische Universität München, Chair of Conservation-Restoration, Art Technology and Conservation Science via Bayhost Scholarship. She worked as an external associate from 2001 to 2007 at The Croatian Conservation Institute at Department for Stucco and Department for Wall Paintings and Mosaics; since 2008 has been employed at CCI at Department for Easel Painting. She has attended at numerous seminars and workshops in Croatia and abroad, as well as attended at professional training at the Joanneum Museum Graz. She gave a presentation at professional conferences and to students at The Academy of Fine Arts Zagreb, Conservation-Restoration Department. Ivana Sambolić participated in three European Commission projects under Youth in Action Program, aimed at recognizing the local cultural heritage and organized various cultural events and took part in the drafting City of Zlatar Development Strategy from 2014 to 2020 and for the period 2019-2020. She has been a member of the IIC-Croatia Group since 2009.

**Santos, Paulo** holds a BSc degree in Mathematics at University of São Camilo and a M.Sc. degree in Nuclear Technology at the University of São Paulo - USP. He is a researcher at the Nuclear and Energy Research Institute, working with cobalt-60 gamma irradiation devices and facilities and its applications.

**Serhatlić, Sanja** was born 1966 in Dubrovnik. In 1989 graduated from Faculty of Fine Arts, University of Montenegro in Cetinje and earned the title of conservator-restorer. In 1999 she participated in the foundation of the Section for Paper as a part of Croatian Conservation Institute. From 2005 till 2019 she worked as a Head of the Section for Paper. In 2009 earned the title of Consultant conservator restorer, specializing in archive and library collections, works of art on paper. From 2006 she also worked as an External Associate at the Art and Restoration Department, University of Dubrovnik where she earned the title of docent in 2018. In 2019 she became full-time employee at the University of Dubrovnik as Assistant Professor of Arts. Currently she is also Evaluator for higher professional titles in the field of archive and library collections and works of art on paper and a member of the workgroup founded by Ministry of Culture and Media with an aim of making a national strategy for preserving Croatian written cultural heritage.

**Singer, Đuro** holds MA in History and Library and Information Science from the Faculty of humanities and social sciences, University of Zagreb. As a librarian he has been working at the Preservation and storage department of National and University library in Zagreb in which his responsibilities are mainly oriented toward issues of documentation and preparing library materials for restauration, microfilming and digitization. Through his work he does research on manuscripts, books, paintings and other library materials made from 13th century till today. By looking at them as objects he is focusing more on their physical and typographic elements than on their textual content.

**Sokolovskyy, Zenon** was born in Ukrainian Greek Catholic Church priest's family in 1941 in the Olieva-Korolivka village (but in fact in Goshiv) in nowadays *Ivano-Frankivsk region*. *His father rejected to transfer to Russian Orthodox Church and therefore was imprisoned for ten years in the Siberia (system of camps). Zenon had to hide his background while growing up. He graduated from Lviv Polytechnic National University and became an architect – conservator. He dedicated all his career to the protection and preservation of architectural cultural heritage (castles, fortresses and sacral buildings). From 1968 to 1975 he worked as an inspector for preservation of architectural heritage in Inspectorate for cultural heritage protection in Ivano-Frankivsk and from 1978 as a senior architect conservator-restorer in Lviv regional conservation institute. From 2002 until today he lectures at King Danylo University in Ivano-Frankivsk from which he received an honorary doctoral degree. He authored numerous professional and scholarly articles as well as monographs:*

1. Архітектори радянського Івано-Франківська. Серія (Моє місто), Івано-Франківськ “Лілея-НВ-2014”, 108 с;
2. Станиславів-Івано-Франківськ: Місто давнє і сучасне (у співпраці В Шпальчак, З. Соколовський, М Головатий, Львів: Світ, 2011. 296 с;

**Stone, Peter** OBE is the UNESCO Chair in Cultural Property Protection (CPP) and Peace at Newcastle University (UK) and President of the Blue Shield, advisory body to UNESCO on CPP (<https://theblueshield.org/>). He has published widely on heritage management, interpretation, and education. Peter was Honorary Chief Executive Officer of the World Archaeological Congress (1998-2008). Since 2003 his work has focussed on the protection of cultural property in armed conflict and following natural or human-made disasters. He has written extensively on this topic including co-editing, with Joanne Farchakh Bajjal, *The Destruction of Cultural Heritage in Iraq* (2008) and editing *Cultural Heritage, Ethics and the Military* (2011). His article „The 4 Tier approach“ in the *British Army Review* led directly to the establishment of the Cultural Property Protection Unit in UK forces.

**Sučević Miklin, Maja** since 2012 she has been working as external associate in the Croatian Conservation Institute and at Department of Conservation and Restoration of Works of Art in Zagreb. She specialized in paintings on different supports and polychrome wooden sculpture. She is very active as a secretary of the Croatian Conservation-Restoration Association.

**Sunara, Sagita Mirjam** has a diploma in Conservation and a PhD in Art history. She works as an assistant professor at the Conservation Department of the Arts Academy in Split, teaching courses on conservation history and theory, documentation, preventive conservation, and easel painting and polychrome wood conservation. Having worked at the Croatian Conservation Institute – Department in Split for five years, she gained experience in stone conservation. Over the last ten years her main field research is outdoor sculpture conservation. She coedited the book *The Conservation of Sculpture Parks*.

**Šalamon-Cindori, Breza** graduated in the English Language and Literature, Art History and Librarianship from the Faculty of Humanities and Social Sciences in Zagreb and holds a PhD in Information and Communication sciences. She was awarded the title of library adviser. Since 2000 she has been working at the National and University Library in Zagreb. In her doctoral thesis she examined the role of a national library as a heritage institution that is responsible for presenting national cultural heritage kept in its holdings in the time of well-developed web and ICT technologies. In the course of her professional work and training, she participated in conferences in Croatia and abroad and she has written and published articles dealing with different fields of culture, heritage, national libraries, various online services information sciences etc. Since 2019 she has been working in the Croatian Institute for Librarianship at the National and University Library in Zagreb as a university library adviser for higher education and special libraries that hold collections of manuscripts and old books.

**Šatović, Domagoj** is a head of the Department of Conservation and Restoration of Works of Art at the Academy of Fine Arts in Zagreb. He obtained his MA in Technical Sciences, Chemical Engineering and Technology. In the 2010 he obtained a PhD study at the same Faculty with dissertation thesis named “Deterioration of outdoor bronze sculptures and methods of protection”. He is working in the fields of material science, nuclear analytical techniques and electrochemistry.

**Šimić, Irena** was born in 1985 in Zagreb. Works at the Institute of Art History in Zagreb since 2011 on management processing, cataloging, preservation, digitisation and presentation of IAH collections: Photoarchives; Architectural Plans, Drawings and Records Collections; Archival Collections, Donations and Legacies.

**Širec, Jasna** was analyst employed in the Quality Control Department of TEVA Pliva Croatia, where she performed laboratory analysis of pharmaceutical products. Graduate engineer of chemical technology, she completed university professional studies at the Faculty of Chemistry and Chemical Technology, University of Ljubljana. In her graduation paper entitled “The influence of inert materials on the minimum ignition energy of combustible powder”, she experimentally studied the impact of inert additives to combustible powder in order to reduce minimum ignition energy and effectively prevent dust explosion. She worked on the Micrometrics ASAP 2020 Analyser, on thermal analysis equipment using the TG-QMS quadrupole spectrometer, on equipment for determining minimum ignition energy. She performed laboratory analysis in physical chemistry tests: HPLC analysis, UV

/ VIS spectroscopy, rheology and mycoscopy. During almost three decades of work in the pharmaceutical industry, she became well acquainted with all the stages of the work process - from raw materials input, through all the end forms of the pharmaceutical product, right down to final control. She was head of the HPLC analysis laboratory for fifteen years. This work required complete organization of the laboratory, planning analyses, taking over and recording samples, keeping laboratory documentation, keeping process analyses validation documentation, qualification and maintenance of instruments and equipment, as well as review and approval of results and work in databases. In her daily work she used the CDS Empower system, SAP and Glória EDMS system, Documentum and databases. She prepares documentation for internal and external inspections. She is well acquainted with work in the GxP environment and regulatory requirements. Motivated to acquire new knowledge, she had enhanced many years of practical experience with university-level professional education. She had extensive experience in individual and team work, and in responding to challenges in a professional environment - from problems at the fundamental laboratory and technical technological levels, to meeting the requirements of analytical and technical projects in various fields of technology.

**Šojat, Lina** graduated in 2012 at the Faculty of Humanities and Social Sciences, University of Zagreb, Departments of Information Science (Librarianship) and Polish language and Literature. Since 2017, she has been working at the Library and Archival Unit at the Institute of Art History as a Head Librarian.

**Špoljarić, Petra** archivist at the State Archives in Bjelovar since 2014, head of the Department for material outside the archives since 2017. She works as auditor of public and private office record keepers of archival material, and teaches at the Seminar for record keepers. Member of the Croatian Archival Society.

**Štefanac, Tamara** works as an archivist in the National and University Library in Zagreb. She graduated from Art History and Comparative Literature on Faculty of Humanities and Social Sciences, University of Zagreb as well as from Archivistics at the Department of Information Sciences at Faculty of Humanities and Social Sciences, University of Zagreb. She holds a doctorate degree in Information Science from University in Zadar. After completing graduate study she worked as Archivist-documentalist, Curator and later as Director of Croatian Railway Museum. She passed state exams for professional vocation Archivist and Curator. As author, co-author and associate she has prepared twelve museum exhibitions and participated in realization of various museum publications. From everyday practical experiences in museum work she has developed research interest in topics of processing and description of archival and documentary material held in museums and broadly of creation, management and use of documentation in heritage context. Her research interests include descriptive metadata, social life of metadata, exhibitions of archival and documentary material and evidential value of material in heritage institutions.



**Tandon, Aparna** specializes in crisis response and disaster risk reduction for all forms of heritage. She has 25 years of post-qualification work experience in heritage conservation and has conducted professional training for the conservation of heritage in Asia, the Middle East, Europe, Africa and South America. As Senior Programme Leader at ICCROM, she leads the design and implementation of its international flagship programme on First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR) Additionally, she coordinates the activities of Sustaining Digital Heritage and SOIMA (Sound and Image Collections Conservation) programmes aimed at safeguarding endangered audio-visual and digital heritage. She has led emergency response, post-event damage and risk assessments and in-crisis training in Lebanon (2020), Croatia (2020), India (2020, 2018), Northern Iraq (2017), Myanmar (2016), Nepal (2015, 2016), Philippines (2013), Haiti (2010). Additionally, she has held workshops for protecting heritage in conflict-afflicted countries including Syria, Lebanon, Libya, Egypt and Iraq. Aparna has trained military personnel, civil protection teams and humanitarians for providing first aid to cultural heritage during emergencies. She has authored several papers and publications. Her recent handbooks on First Aid to Cultural Heritage in Times of Crisis and Endangered Heritage: Emergency Evacuation of Heritage Collections have been translated multiple languages including Arabic, French, Spanish, Japanese and Russian. Aparna has an MA in Art Conservation from the National Museum Institute, India. She has received advanced level training in Paper Conservation from the Straus Center for Conservation, Harvard University Art Museums, USA. In 2001-2002 she enhanced her professional experience first, as the Fulbright Arts Fellow at the Preservation Directorate of the Library of Congress in Washington, D.C., and then as a Conservation Guest Scholar at the Getty Conservation Institute, Los Angeles, USA. From 1998 to 2004, she worked as the Curator Conservator at the Amar Mahal Museum and Library in Jammu & Kashmir, India.

**Todorović, Vasilija** by finishing graduate studies in 2020 gained the Masters degree in art, specializing in conservation and restoration of ceramic artefacts. In the beginning of 2020 she started working on a project "Roofs of Dubrovnik: The Lost Dimension". Through her work on the project she formed "Classification of Dubrovnik historic roof tiles Kanalice" which was presented as her thesis for Masters degree. During her studies she participated in Erasmus + program several times. She went to Palazzo Spinelli in Florence to work on stone artefacts. Year later she went to Natural History Museum in Vienna where she worked on iron age ceramics. With participation on the two student conferences, in Krakow and in Zagreb during 2019, she was able to present her work in the form of poster and verbal presentation. Also was a volunteer on numerous occasions including workshop for restoration of Mezzaluna fortress (Herceg Novi, Montenegro 2017), helping at Centre for archaeology and restoration (Kotor, Montenegro 2017) and organizing the International Conference of Conservation and Restoration Studies (Dubrovnik, Croatia 2019 and 2015).



**Udina, Rita** is paper and book conservator based in Barcelona (Spain) at her private conservation lab, where she works for Archives, Museums, Libraries and private collectors since 1999. Such variety of customers has led to a diverse focus of interest as well. She enjoys very much books structure issues, but also architectural plans, oversized drawings and any new challenge shall be included as new point of interest. She occasionally collaborates with other private conservator studios in other countries (France: Silvia Brunetti; USA: Amparo Escolano; Italy: Antonio Rava). She organizes international conservation courses at her studio as well as in other countries and with other institutions (Restauratoren Nederland, Institut National du Patrimoine, Paris; Atelier pour le Papier, Switzerland; Universidad de Granada, Spain...). The topics covered are diverse: inpainting and loss compensation on paper conservation, housing and framing photographs, book conservation, introduction to paper conservation and others related to book and paper conservation. She enjoys sharing conservation issues in lectures, papers, and on social media, particularly with her blog (<https://ritaudina.com>) which has followers from all over the world.

**Ujević, Antonija** is from Imotski, but she lives in Split last five years. She finished elementary school Tin Ujević in Krivodol, a small settlement near city of Imotski. From 2011 to 2015 she went Science - and mathematics high school in Imotski. Last five years she is going to Faculty of Humanities and Social Sciences in Split. Soon she will become professor of art history and philosophy. She speaks english and french language.

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She participated in project of reorganization of Ethnographical museum storages “RE-ORG” in 2017.

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