**Technical meeting on "Strategies for Preservation and Consolidation of Cultural Heritage Artefacts through Radiation Processing”**

**Zagreb, Croatia**

4 - 8 June 2018

Organized by

**International Atomic Energy Agency (IAEA), Vienna**

and

**Ruđer Bošković Institute, Zagreb, Croatia**

**Radiation Chemistry and Dosimetry Laboratory**

with the help of

**Academy of Fine Arts, Zagreb, Croatia**

**Croatian Conservation Institute, Zagreb, Croatia**

**Mimara Museum, Zagreb, Croatia**

**International Council of Museums Croatia**

Ruđer Bošković Institute, Bijenička 54, HR-10000 Zagreb, Croatia  
<http://www.irb.hr>

# Monday, 04th June 2018 - Hall 3

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| **9:00 – 9:30** | **Registration** |
| **9:30 – 9:40** | **Opening Session**  **Branka Mihaljević**, Head of Radiation Chemistry and Dosimetry Laboratory and Organizer of the Meeting |
| **9:40 – 9:55** | **Welcoming address**  **David Matthew** **Smith**, RBI Director General: Overview of the Ruđer Bošković Institute Activities and Achievements  **Boris Ilijaš**, Assistant Director General, State Office for Nuclear Safety: Welcome address |
| **9:55 – 10:10** | **Sunil Sabharwal** International Atomic Agency (IAEA)  *Introduction to the IAEA projects related to study and protection of CH objects, future*  *Objectives, outcomes of the TM* |
| **10:10 – 10:25** | *Radiation Chemistry and Dosimetry Laboratory(RCDL) presentation* |
| **10:25 – 10:30** | Election of the Chairperson(s), Adoption of the agenda |
| **10:30 – 11:00** | **Coffee break** |
| **SESSION 1: RADIATION SCIENCE AND ART IN HARMONY** | |
| **11:00 – 11:20** | **Katarina Marušić** - CROATIA  *Ionizing radiation for protection of artworks and cultural heritage in Croatia-an overview* |
| **11:20 - 11:40** | **Iskra Karniš Vidovič** - CROATIA  *Review of the Cooperation between the Croatian Conservation Institute and the Ruder Boskovic Institute* |
| **11:40 – 12:00** | **Anđelko** **Pedišić** - CROATIA  *Conservation of Cultural Heritage using Ionizing Radiation in the Context of Wartime Evacuations and Reparing Damages Caused During the War* |
| **12:00-12:20** | **Tijana-Annar Trputec Strčić** - CROATIA  *Art Residents – Pests and Art* |
| **12:20 – 13:30** | **Lunch** |
| **SESSION 2A: IRRADIATON EFFECTS ON COMPONENTS OF CH OBJECTS** | |
| **13:30 – 14:10** | Introduction lecture 1: **Pablo Antonio** **Vasquez Salvador** – BRAZIL  *From Historical Artifacts to Technology: Ionizing Radiation for Preservation* |
| **14:10 - 14:30** | **Zaki Ajji** - SYRIAN ARAB REPUBLIC  *Current status of radiation processing in Syria (cellulose materials)* |
| **14:30 – 14:50** | **Slobodan Mašić** and **Ivica Vujčić** - SERBIA  *The Use of Gamma Radiation for the Treatment of Cultural Heritage in Serbia* |
| **14:50-15:50** | **POSTERS + Coffee** |
| **15:50-16:00** | **Ines Krajcar Bronić –** CROATIA  *Brief introduction of C14 method for the cultural heritage dating* |
| **16:00 – 18:00** | **Visit to the RBI laboratories**  **C:\Users\abbasovad\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Facilities_NGClanakNaslovna.jpgC:\Users\abbasovad\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Kapitalna-oprema_NGKategorijaNaslovna.jpgC:\Users\abbasovad\AppData\Local\Microsoft\Windows\INetCache\Content.Word\irradiation-and-detector_NGFancyBoxMax.jpg** |
| **~ 18:00** | **Welcome Reception** (sponsored by RCDL) |

**Tuesday, 05th June – Hall 1**

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| **SESSION 2B: IRRADIATON EFFECTS ON COMPONENTS OF THE CH OBJECTS** | | | | |
| **9:00 – 9:40** | Introduction lecture 2: **Maja Šegvić Klarić – CROATIA**  *Gamma-irradiation for cultural heritage – could it prevent fungal growth on paper materials?* | | | |
| **9:40 – 10:00** | |  | | --- | | **Irina Pucić–CROATIA**  *Radiation effects on some of the materials constituting CH objects - recent research of the RCDL scientists* | | | | |
| **10:00 – 10:20** | **Enrique Francisco PRIETO MIRANDA – CUBA**  *(TBD)* | | | |
| **10:20 – 10:40** | **Oleksandr Buhay** – UKRAINE  *Application of nuclear techniques for cultural heritage in Ukraine: Problems and perspectives* | | | |
| **10:40 – 11:00** | **Coffee break** | | | |
| **SESSION 3: SIDE- AND POST-IRRADIATION EFFECTS STUDIES** | | | | |
| **11:00 – 11:40** | Introduction lecture 3:  **Stefania Baccaro - ITALY**  *Characterization of radiation processing effects in Cultural Heritage applications* | | |
| **11:40 – 12:00** | **Petya Kovacheva - BULGARIA**  *Some side-effects of gamma-irradiation disinfestation on highly contaminated leathers and librarian materials* | | |
| **12:00 – 12:20** | **Kumarawadu Ruwan Chandima De Silva - SRI LANKA**  *Application of Radiation Surface Modification Techniques for the Preservation of Achieved Materials in Sri Lanka* | | |
| **12:20 – 13:30** | **Lunch** | | |
| **13:30 – 15:00** | Introduction on the working group discussions and  formation of the working groups | | |
| Working group on the Recommendations for safe CH components irradiation | Working group on the Uniform irradiation Procedures | Working group on the  Analytical tools for safe irradiation of CH |
| **15:00 – 15:30** | **Coffee break** | | |
| **17:00 – 18:30** | **Guided tour of the city center** | | |

**Wednesday, 06th June – Hall 1**

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| **SESSION 4A: CURRENT PRACTICES IN RADIATION CONSERVATION OF CH OBJECTS** | |
| **9:30 – 10:10** | Introduction lecture 4: **Celina Horak - ARGENTINA**  *Radiation processing and nuclear techniques capabilities related to cultural heritage in Argentina* |
| **10:10 – 10:30** | **Hassan Abd El-Rehim - EGYPT**  *Use of Radiation Technology for Preservation of Some Egyptian Cultural Heritage Artifacts* |
| **10:30 – 10:50** | **Hae-Jun Park – KOREA**  *Application of irradiation technology for conservation of cultural heritage in Korea: Control of fungi and insect in wood cultural heritages* |
| **10:50 – 11:20** | **Coffee break** |
| **SESSION 4B: CURRENT PRACTICES IN RADIATION CONSERVATION OF CH OBJECTS** | |
| **11:20 – 11:40** | **Dagmara Chmielewska-Śmietanko - POLAND**  *Electron Beam for Preservation of Biodeteriorated Cultural Heritage Paper-Based Objects* |
| **11:40 – 12:00** | **Arbi Mejri - TUNISIA**  *Developing of Radiation Treatment Methodologies for Preservation of Tunisian Cultural Heritage: Application in the preservation of women's ceremonial dress in noble textile* |
| **12:00 – 13:00** | **Lunch** |
| **13:00** | **Visit to chapels in the Sisak region**  **C:\Users\abbasovad\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Capture.jpg** |
|  | **Conference Dinner (sponsored by IAEA)** |

**Thursday, 07th June**

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| **SESSION 5: PROCEDURES FOR IRRADIATION OF CH OBJECTS (incl. dose mapping, dose limit ratio, simulation techniques)** | | | |
| **9:00 – 9:40** | Introduction lecture 5: **Constantin Daniel Negut - ROMANIA**  *Disinfestation of artefacts by gamma irradiation in Romania* | | |
| **9:40 – 10:00** | **Volodymyr Morgunov – UKRAINE**  *Numerical Simulation of the Radiation Treatment of Cultural Heritage by Bremsstrahlung X-Rays* | | |
| **10:00 – 10:20** | **Coffee break** | | |
| **SESSION 6: CONSOLIDATION: New radiation curable resins** | | | |
| **10:20 – 11:00** | Introduction lecture 6: **Laurent Cortella - FRANCE**  *Uses and Prospects in Gamma Biocide Treatments and Radiocurable Resin-Based Consolidation Treatments for Cultural Heritage Artefacts* | | |
| **11:00 – 11:20** | **Luis M. Ferreira - PORTUGAL**  *Hybrid materials (gel/solid) by ionizing radiation for conservation of non-metallic inorganic historical materials* | | |
| **11:20 – 11:40** | **Maria Helena Casimiro - PORTUGAL**  *Gels for cleaning artworks* | | |
| **11:40 – 12:00** | **Alexandra Rodrigues - PORTUGAL**  *A case study of consolidation in Conimbriga: The House of Trident and Sword* | | |
| **12:00 – 13:00** | **Lunch** | | |
| **13:00 – 14:30** | **Working group discussions** | | |
|  | Working group on the Recommendations for safe CH components irradiation | Working group on the Uniform irradiation procedures | Working group on the  Analytical tools for safe irradiation of CH |
| **14:30 – 15:00** | **Coffee break** | | |
| **15:00 – 16:30** | Presentations of the discussions and outcomes of the Working groups | | |
| **18:00 – 19:00** | **Guided tour of the Cathedral and Treasury**  **C:\Users\abbasovad\AppData\Local\Microsoft\Windows\INetCache\Content.Word\riznica_zagrebacke_katedrale_header-960x420.jpg** | | |
| **~ 19:30** | **Joint Dinner (Optional at the participants’ expense)** | | |

**Friday, 08th June**

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| **9:00 – 10:30** | **Drafting the meeting report** |
| **10:30 – 11:00** | **Coffee break** |
| **11:00 – 12:00** | **Formulation of Action Plan and Recommendations**  **Finalization and approval of the meeting report** |
| **12:00 – 12:30** | **Conclusions and closing remarks** |

Visit to the RBI Laboratories:

1. Radiocarbon Laboratory
2. Laboratory for Ion Beam Interactions (LIBI, Accelerator)
3. Radiation Chemistry and Dosimetry Laboratory (RCDL):

visit to gamma irradiation facility used for radiation treatment of cultural artifacts