# Technical Meeting on Nuclear Forensics: From National Foundations to Global Impact

## Vienna International Centre, Vienna, Austria
## 11-14 April 2022

## PROGRAMME

## All sessions to be held in Board Room A unless stated otherwise

### Monday, 11 April 2022

| Time[1] | Topic | |
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| 09:00 – 11:30 | **Registration for in-person participants** | |
| 11:30 – 11:50 | **Opening Remarks** | Ms Elena Buglova, Director, Division of Nuclear Security, IAEA<br>Mr John Buchanan, INTERPOL (Technical Meeting co-chair)<br>Ms Ruth Kips, Lawrence Livermore National Laboratory, USA (Technical Meeting co-chair) |
| 11:50 – 12:00 | **IAEA Activities in Nuclear Forensics and Radiological Crime Scene Management** | Ms Eva Szeles, CFS Unit Head, Division of Nuclear Security, IAEA (Technical Meeting scientific secretary) |
| 12:00 – 12:30 | **Keynote Remarks** | Mr Simon Minks, Ministry of Justice and Security, Netherlands |
| 12:30 – 13:00 | **Keynote Remarks** | Mr Jay Tilden, National Nuclear Security Administration, USA |

[1] All times listed in Central European Daylight Time (UTC+2)

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| 13:00 – 13:30 | **Panel Discussion #1 – Legal Framework and the CPPNM/A** | Mr Jonathan Herbach, Office of Legal Affairs, IAEA<br>Ms Anita Nilsson, Sweden<br>Ms Maia Silagadze, Chancellery Department, Georgia<br>Mr Frank Wong, Lawrence Livermore National Laboratory, USA<br>Mr Kevin O'Prey (moderator) |
| 13:30 – 14:00 | *Break* | |
| 14:00 – 14:30 | **Case Study #1 – Joint Effort to Respond to a Case of Sealed Co-60 Sources Found Outside of Regulatory Control** | Mr Jens-Tarek Eisheh, Federal Office for Radiation Protection, Germany<br>Mr Jose Garcia Sainz, Division of Nuclear Security, IAEA<br>Mr Kilian Smith, Incident and Emergency Centre, IAEA<br>Mr Saiyadi Imam Sulaiman, Nigerian Nuclear Regulatory Authority, Nigeria<br>Mr Ed van Zalen, Netherlands Forensic Institute, Netherlands |
| | **Oral Session #1 – Legal Framework and the CPPNM/A** | Mr Vitaly Fedchenko, Stockholm International Peace Research Institute, Sweden (session chair) |
| 14:30 – 14:42 | Use of Nuclear Forensics Capacities to Support National Enforcement of and Demonstrate Compliance with International Nuclear Counter-Terrorism Legal Instruments | Mr Jerry Davydov, Los Alamos National Laboratory, USA |
| 14:42 – 14:54 | The Australian Nuclear Science and Technology Organization (ANSTO) and the Philippine Nuclear Research Institute (PNRI) Collaboration on Nuclear Forensics and Border Protection | Ms Vallerie Ann Samson, Philippine Nuclear Research Institute, Philippines |
| 14:54 – 15:06 | Overview of criminal legislation and nuclear forensics capabilities in Western Balkan countries | Ms Jovana Nikolov, University of Novi Sad, Serbia |
| 15:06 – 15:18 | Challenges in establishing and maintaining a national nuclear forensics support framework and importance of international cooperation | Mr Ababacar Sadikhe Ndao, Institut de Technologie nucléaire appliquée (ITNA), Université Cheikh Anta Diop, Dakar, Senegal |
| 15:18 – 15:30 | Regulatory authority activities in support to nuclear forensics | Mr Ramin Pashavyev, State Agency on Nuclear and Radiological Activity Regulations, Azerbaijan |

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| 15:30 – 15:45 | Nuclear Security Response Framework | Mr Nigel Tottie, Division of Nuclear Security, IAEA |
| 15:45 – 16:00 | Question and Answer Session | Mr Vitaly Fedchenko, Stockholm International Peace Research Institute, Sweden (session chair) |
| | **Poster Session #1** | Mr Gary Eppich, International Atomic Energy Agency (session chair) |
| 16:00 – 16:30 | Iterative method combined with HRGS for physical characterization of uranium materials in the frame of nuclear forensics investigations | Mr Dmytro Kutniy, NSC Kharkov Institute of Physics and Technology, Ukraine |
| 16:00 – 16:30 | Evaluation of different software codes for the analysis of gamma spectra for the potential use in nuclear forensics | Ms Jovana Nikolov, University of Novi Sad, Serbia |
| 16:00 – 16:30 | Characterization of uranium bearing material using HPGe gamma detector for nuclear forensics purposes | Ms Naomi Dikeledi Mokhine, North-West University, South Africa |
| 16:00 – 16:30 | Investigation of sealed Cm-244 sources from nuclear forensics aspect using non-destructive methods | Mr Krisztian Soos, Centre for Energy Research, Hungary |
| | **Oral Session #2 – Capability Development and Sustainability** | Mr Peter Völgyesi, Centre for Energy Research, Hungary (session chair) |
| 16:30 – 16:42 | Building and Maintaining an Enduring Nuclear Forensics Capability – UK Case Study | Ms Karen Kennedy, Atomic Weapons Establishment, United Kingdom |
| 16:42 – 16:54 | Using a National Nuclear Forensics Library to Address Gaps within a Nuclear Security Infrastructure | Mr Jerry Davydov, Los Alamos National Laboratory, USA |
| 16:54 – 17:06 | Current Status and Future Prospects on Nuclear Forensics Capability Building and Technology Development by the Integrated Support Center for Nuclear Non-proliferation and Nuclear Security at the Japan Atomic Energy Agency | Mr Yoshiki Kimura, Japan Atomic Energy Agency, Japan |
| 17:06 – 17:18 | Nuclear Forensics Expert Pipeline Sustainability as a Key Component of Nuclear Security | Mr Adam Stratz, National Nuclear Security Administration, USA |
| 17:18 – 17:30 | The IAEA Residential Assignment Programme | Mr Gary Eppich, Division of Nuclear Security, IAEA |
| 17:30 – 17:45 | Question and Answer Session | Mr Peter Völgyesi, Centre for Energy Research, Hungary (session chair) |

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| 17:45 – 18:15 | **Panel Discussion #2 – Nuclear Forensics During the COVID-19 Pandemic** | Ms Puck Brandhoff, National Institute for Public Health and the Environment, Netherlands<br><br>Ms Ruth Kips, Lawrence Livermore National Laboratory, USA<br><br>Ms Jovana Nikolov, University of Novi Sad, Serbia<br><br>Mr David Smith, Lawrence Livermore National Laboratory, USA<br><br>Ms Erica Wolf, National Nuclear Security Administration, USA<br><br>Mr Jeremy Edwards, National Nuclear Laboratory, United Kingdom (moderator) |

## Tuesday, 12 April 2022

| Time | Topic | |
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| 11:30 – 12:00 | **Keynote Remarks** | Ms Maria Betti, Director, European Commission, Joint Research Centre |
| 12:00 – 12:30 | **Panel Discussion on Nuclear Forensics within a Nuclear Security Framework** | Ms Tegan Bull, Australian Nuclear Science and Technology Organization, Australia<br>Mr Michael Curry, Department of State, USA<br>Ms Anita Nilsson, Sweden<br>Mr Kevin O'Prey (moderator) |
| 12:30 – 13:30 | **Interactive Video-Based Activity** | Mr Frank Wong, Lawrence Livermore National Laboratory, USA (facilitator) |
| 13:30 – 14:00 | *Break* | |
| | **Oral Session #3 – Radiological Crime Scene Management** | Mr John Simm, Metropolitan Police Service, United Kingdom (session chair) |
| 14:00 – 14:12 | Radiological Crime Scene Management Training provided at the European Nuclear Security Training Centre (EUSECTRA): hybrid remote-hands-on training to efficiently complement in-person trainings | Mr Jean Galy, European Commission, Joint Research Centre, Karlsruhe |
| 14:12 – 14:24 | Hungarian Procedure for Radiological Crime Scene Management | Mr Csaba Tobi, Centre for Energy Research, Hungary, and Ms Izabella Kakuja, Hungarian Police, Hungary |
| 14:24 – 14:36 | Radiation Protection Concerns for Radiological Crime Scene Management | Mr Elder Magalhaes de Souza, Instituto de Radioproteção e Dosimetria IRD-CNEN, Brazil |
| 14:36 – 14:48 | Nuclear forensic science support to a nuclear security event | Mr John Simm, Metropolitan Police Service, United Kingdom |
| 14:48 – 15:00 | Advancement in Australian CBRN training facilities giving frontline responders a realistic awareness of working in the 'hot zone' | Mr Jack Goralewski, Australian Nuclear Science and Technology Organization, Australia |
| 15:00 – 15:15 | Sustaining the US Conventional Forensic Examination on RN Contaminated Evidence Capability | Mr James Blankenship, FBI Laboratory, USA |

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| 15:15 – 15:30 | Question and Answer Session | Mr John Simm, Metropolitan Police, United Kingdom (session chair) |
| 15:30 – 16:00 | **Panel Discussion #3 – From Crime Scene to Courtroom** | Ms Puck Brandhoff, National Institute for Public Health and the Environment, Netherlands<br>Ms Melanie Fraser, Australian Federal Police, Australia<br>Mr Elder Magalhaes de Souza, Institute of Radiation Protection and Dosimetry, IRD-CNEN, Brazil<br>Ms Maia Silagadze, Chancellery Department, Georgia<br>Mr John Buchanan, INTERPOL (moderator) |
| | **Poster Session #2** | Ms Eva Szeles, CFS Unit Head, Division of Nuclear Security, IAEA (session chair) |
| 16:00 – 16:30 | Investigation of the lanthanides pattern for uranium attribution in nuclear forensics environment | Mr Tebogo Kupi, North-West University, South Africa |
| 16:00 – 16:30 | Preparation and validation of Pu age dating materials for nuclear forensics | Mr Zsolt Varga, European Commission, Joint Research Centre, Karlsruhe |
| 16:00 – 16:30 | Nuclear Forensic Characterization of Uranium Ore Concentrates by Fourier-transformation Infrared Spectroscopy | Mr Csaba Tobi, Hevesy Gyorgy Phd School of Chemistry, Faculty of Science, Eotvos Lorand University, Hungary |
| 16:00 – 16:30 | Nuclear Smuggling Detection and Deterrence Radiochronometry: Past, Present, and Future - Review of Radiochronometry Collaborations and Challenges | Ms Theresa Kayzar-Boggs, Los Alamos National Laboratory, USA |
| 16:30 – 17:30 | **Demonstration #1 – Nuclear Security Response** | Republic of Austria Federal Ministry of Interior Special Intervention Unit COBRA<br>Directorate for Special Units Department 3 |
| 17:30 – 18:00 | **Case Study #2 – "Operation Vegas"; a Case Study on the Trafficking of Radioactive Material** | Republic of Austria Federal Ministry of Interior Special Intervention Unit COBRA<br>Directorate for Special Units Department 3 |

## Wednesday, 13 April 2022

| Time | Topic | |
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| 11:00 – 12:00 | **Demonstration #2 – Radiological Crime Scene Management** | Hungarian Police<br>Hungarian Centre for Energy Research<br>Mr Kevin Kelly, Division of Nuclear Security, IAEA (narrator) |
| | **PARALLEL ORAL SESSIONS**<br>**Oral Session #4 – International Cooperation and Exercises**<br>**Location: Board Room A** | Mr Chris Cochrane, Canadian Nuclear Safety Commission, Canada (session chair) |
| 12:00 – 12:12 | Celestial Skónis: the 6th Collaborative Materials Exercise of the Nuclear Forensics International Technical Working Group | Mr Jon Schwantes, Pacific Northwest National Laboratory, USA |
| 12:12 – 12:24 | Nuclear forensics in the Republic of Kazakhstan and role of international cooperation in its development | Mr Viktor Gluchshenko, Institute of Nuclear Physics, Kazakhstan |
| 12:24 – 12:36 | The Joint Romania – U.S. Nuclear Forensics Examination of Legacy High Enriched Uranium (HEU) Materials | Mr Andrei Apostol, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Romania |
| 12:36 – 12:48 | Capacity building for nuclear forensics through participation to the Collaborative Material eXercises (CMX) organized by NF-ITWG | Mr Hubert Schoech and Mr Hubert Schoech, Commissariat à l'énergie atomique et aux énergies, France |
| 12:48 – 13:00 | Experience in the application of forensics examination techniques in the IAEA regional exercises on nuclear forensics | Mr Kirill Zhizhin, Laboratory for Microparticle Analysis, Russian Federation |
| 13:00 – 13:15 | Spectral Flavor of the Month: Spectroscopic challenges for technical experts | Ms Mansie Iyer, National Nuclear Security Administration, USA |
| 13:15 – 13:30 | Question and Answer Session | Mr Chris Cochrane, Canadian Nuclear Safety Commission, Canada (session chair) |

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| | **PARALLEL ORAL SESSIONS**<br>**Oral Session #5 – Analytical Methods for Analysing Radiological and Nuclear Evidence**<br>**Location: Press Room** | Ms Harinate Mungpayaban, Office of Atoms for Peace, Thailand (session chair) |
| 12:00 – 12:12 | 30 years Nuclear Forensic Analysis at the JRC Karlsruhe – Support provided to EU Member States and Other Partner Countries | Ms Maria Wallenius, European Commission, Joint Research Centre, Karlsruhe |
| 12:12 – 12:24 | A novel methodology for Nuclear Forensic Examination: Positron Annihilation Spectroscopy | Mr Csaba Tobi, Hevesy Gyorgy Phd School of Chemistry, Faculty of Science, Eotvos Lorand University, Hungary |
| 12:24 – 12:36 | Analysis of UOC for nuclear forensics fingerprinting using Scanning Electron Microscope | Mr Manny Mathuthu, North-West University, South Africa |
| 12:36 – 12:48 | Origin assessment of sealed neutron sources with X-ray radiography, a new method for nuclear forensic investigations | Mr Peter Völgyesi, Centre for Energy Research, Hungary |
| 12:48 – 13:00 | Non-destructive assay of industrial gamma radiography devices: Case Study | Mr Alexandru-Florin Berevoianu, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Romania |
| 13:00 – 13:15 | The IAEA Incident and Trafficking Database | Mr Jose Garcia Sainz, Division of Nuclear Security, IAEA |
| 13:15 – 13:30 | Question and Answer Session | Ms Harinate Mungpayaban, Office of Atoms for Peace, Thailand (session chair) |
| 13:30 – 14:00 | *Break* | |
| 14:00 – 14:30 | **Panel Discussion #4 – Success Stories in Nuclear Forensics Capacity Building** | Ms Liz Dallas, National Nuclear Security Administration, USA<br>Mr Viktor Gluchshenko, Institute of Nuclear Physics, Kazakhstan<br>Mr Ivalyo Ivanov, Bulgarian Institute for Nuclear Research and Nuclear Energy (INRNE), Bulgaria<br>Mr Manny Mathuthu, North-West University, South Africa<br>Mr David Smith, Lawrence Livermore National Laboratory, USA (moderator) |

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| | **Oral Session #6 – Novel Techniques Applied to Nuclear Forensic Examinations** | Ms Maria Wallenius, European Commission, Joint Research Centre, Karlsruhe (session chair) |
| 14:30 – 14:42 | Development of a FIB-SEM-ToF-SIMS microanalysis method for potential applications in the investigation of nuclear forensics samples and safeguards | Ms Masturina Kracica, Australian Nuclear Science and Technology Organization, Australia |
| 14:42 – 14:54 | Nuclear Forensics Capacity Building: New Technologies, Research & Development and Signature Research in Nuclear Forensics | Mr Greg Brennecka, Lawrence Livermore National Laboratory, USA |
| 14:54 – 15:06 | Application of Artificial Intelligence in Nuclear Forensics: Findings of a Dedicated Workshop | Mr Klaus Mayer, European Commission, Joint Research Centre, Karlsruhe |
| 15:06 – 15:18 | Development of a Method for Image Analysis for Nuclear Forensic Examinations | Ms Ruth Kips, Lawrence Livermore National Laboratory, USA |
| 15:18 – 15:30 | ONIX: An open-source depletion code with nuclear forensic applications | Mr Julien de Troullioud de Lanversin, Harvard University, USA |
| 15:30 – 15:45 | Question and Answer Session | Ms Maria Wallenius, European Commission, Joint Research Centre, Karlsruhe (session chair) |
| 15:45 – 16:00 | *Break* | |
| | **Poster Session #3** | Mr Kevin Kelly, Division of Nuclear Security, IAEA (session chair) |
| 16:00 – 16:30 | Optically stimulated luminescence and thermoluminescence dosimetry for nuclear forensics | Mr Andras Kovacs, Centre for Energy Research, Hungary |
| 16:00 – 16:30 | Forensics Detection of Nuclear Materials by Machine Learning Microphotonic Techniques | Mr Hudson Kalambuka Angeyo, Department of Physics, University of Nairobi, Kenya |
| 16:00 – 16:30 | Development of capability on nuclear forensics signature investigation to establich a national nuclear forensics library | Ms Areerak Rueanngoen, Office of Atoms for Peace, Thailand |
| 16:00 – 16:30 | Nuclear Forensic Analysis Laboratory Capability in the Integrated Support Center for Nuclear Non-proliferation and Nuclear Security at the Japan Atomic Energy Agency | Mr Yoshiki Matsui, Japan Atomic Energy Agency, Japan |
| 16:00 – 16:30 | Conducting virtual exercises for nuclear forensics capacity building during the pandemic | Ms Kalaya Changkrueng, Office of Atoms for Peace, Thailand |

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| 16:30 – 17:00 | **Panel Discussion #5 – Experiences with the GICNT Self-Assessment Tool** | Mr Andrei Apostol, Horia Hulubei National Institute of Physics and Nuclear Engineering, Romania<br>Mr Ali El-Jaby, Canadian Nuclear Safety Commission, Canada<br>Ms Harinate Mungpayaban, Office of Atoms for Peace, Thailand<br>Mr Kevin O'Prey (moderator) |
| 17:00 – 18:00 | **Nuclear Forensics Drama Theatre (Mock Trial)** | Mr James Blankenship, FBI Laboratory, USA<br>Ms Ruth Kips, Lawrence Livermore National Laboratory, USA<br>Mr Simon Minks, Ministry of Justice and Security, Netherlands<br>Mr Kevin O'Prey (moderator) |

## Thursday, 14 April 2022

| Time | Topic | |
|---|---|---|
| 11:30 – 12:00 | **Keynote Remarks** | Mr John Buchanan, INTERPOL |
| 12:00 – 12:30 | **Panel Discussion #6 – International Assistance and Partnerships in Nuclear Forensics** | Mr Andrei Apostol, Horia Hulubei National Institute of Physics and Nuclear Engineering, Romania, co-chair of Nuclear Forensics Working Group of the Global Initiative to Combat Nuclear Terrorism (GICNT)<br>Mr John Buchanan, INTERPOL<br>Mr Michael Curry, Department of State, USA, co-chair of the Nuclear Forensics International Technical Working Group (ITWG)<br>Mr Talgat Toleubayev, United Nations Interregional Crime and Justice Research Institute<br>Mr Ed van Zalen, Netherlands Forensic Institute, Netherlands (moderator) |
| 12:30 – 13:00 | **Panel Discussion #7 – The Future of Nuclear Forensics** | Ms Tegan Bull, Australian Nuclear Science and Technology Organization, Australia<br>Mr Ike Dimayuga, Canadian Nuclear Laboratories, Canada<br>Ms Naomi Marks, Lawrence Livermore National Laboratory, USA<br>Ms Alina Nitrean, Forensic and Legal Expertise Center, General Police Inspectorate of the Ministry of Internal Affairs, Moldova<br>Mr Kevin O'Prey (moderator) |
| 13:00 – 13:30 | *Break* | |
| 13:30 – 14:00 | **ITWG 25th Anniversary** | Mr Michael Curry, Department of State, USA<br>Mr Klaus Mayer, European Commission, Joint Research Centre, Karlsruhe |
| 14:00 – 15:00 | **Interactive Session – ITWG Mini-Exercise on National Nuclear Forensic Libraries** | Ms Naomi Marks, Lawrence Livermore National Laboratory, USA (facilitator) |

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| | **Poster Session #4** | Ms Anna Selezneva, Division of Nuclear Security, IAEA (session chair) |
| 15:00 – 15:30 | Implementation of traditional forensics methods and procedures within the nuclear forensics laboratory of Romania | Ms Doina Stanciu, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Romania |
| 15:00 – 15:30 | Analysis of biological samples contaminated by NRM for forensics examination | Mr Kirill Zhizhin, Laboratory for Microparticle Analysis, Russian Federation |
| 15:00 – 15:30 | Application of alpha-autoradiography for detection and identification of alpha-emitting contamination in nuclear forensics examination | Ms Mariia Ryabochenko, Laboratory for Microparticle Analysis, Russian Federation |
| | **PARALLEL ORAL SESSIONS**<br>**Oral Session #7 – Signature Research on Isotopic Signatures and Age-Dating**<br>**Location: Board Room A** | Mr Csaba Tobi, Centre for Energy Research, Hungary (session chair) |
| 15:30 – 15:42 | The emerging importance of stable isotopes composition as a signature for geolocation of uranium ore samples | Mr Eyal Elish, Analytical Chemistry Department, Nuclear Research Center Negev (NRCN), Israel |
| 15:42 – 15:54 | Measurement and validation of the isotopic composition in inhomogeneous samples by LA-MC-ICP-MS | Mr Zsolt Varga, European Commission, Joint Research Centre, Karlsruhe |
| 15:54 – 16:06 | LG-SIMS oxygen isotope and impurity distribution characterization of U-O-bearing particles as signatures of process history | Mr Travis Tenner, Los Alamos National Laboratory, USA |
| 16:06 – 16:18 | The oxygen isotopes composition of uranium oxides in the nuclear fuel cycle as a new signature for process attribution | Mr Maor Assulin, Analytical Chemistry Department, Nuclear Research Center Negev (NRCN), Israel |
| 16:18 – 16:30 | A Cooperation to Improve 231Pa/235U Age Dating Measurements of Uranium for Nuclear Forensics | Ms Theresa Kayzar-Boggs, Los Alamos National Laboratory, USA |
| 16:30 – 16:45 | Question and Answer Session | Mr Csaba Tobi, Centre for Energy Research, Hungary (session chair) |

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| | **PARALLEL ORAL SESSIONS**<br>**Oral Session #8 – Laboratory Capabilities**<br>**Location: Press Room** | Mr Gary Eppich, Division of Nuclear Security, IAEA (session chair) |
| 15:30 – 15:42 | Research, Education and Training activities at Nuclear Physics Lab, AUTH | Ms Alexandra Ioannidou, Nuclear Physics Department, Aristotle University of Thessaloniki (NPL-AUTH), Greece |
| 15:42 – 15:54 | Thailand's Challenges of Becoming an ISO/IEC 17025 Accredited Nuclear Forensics Laboratory: A Scope of Qualitative Analysis of Uranium and Thorium in a Geological Sample Using Gamma-Ray Spectroscopy | Ms Haruetai Kasiwattanawut, Office of Atoms for Peace, Thailand |
| 15:54 – 16:06 | Development of Nuclear Forensics Capabilities at CNL | Mr Ike Dimayuga, Canadian Nuclear Laboratories, Canada |
| 16:06 – 16:18 | The INSSP: a tool to strengthen Nuclear Forensics and Radiological Crime Scene Management | Ms Valerie Rouillet-Chatelus, Division of Nuclear Security, IAEA |
| 16:18 – 16:30 | Nuclear Security Support Centres: Role of Nuclear Forensics in Scientific Support | Ms Quillan Rose, Division of Nuclear Security, IAEA |
| 16:30 – 16:45 | Question and Answer Session | Mr Gary Eppich, Division of Nuclear Security, IAEA (session chair) |
| 16:45 – 17:00 | *Break* | |
| 17:00 – 17:30 | **Panel Discussion – Nuclear Forensics Findings** | Ms Kathleen Heppell-Masys, Canadian Nuclear Safety Commission, Canada<br>Mr Klaus Mayer, European Commission, Joint Research Centre, Karlsruhe<br>Ms Erica Wolf, National Nuclear Security Administration, USA<br>Mr Kevin O'Prey (moderator) |
| 17:30 – 18:00 | **Closing Remarks** | Mr John Buchanan, INTERPOL (Technical Meeting co-chair)<br>Ms Ruth Kips, Lawrence Livermore National Laboratory, USA (Technical Meeting co-chair)<br>Mr Daming Liu, Section Head, Division of Nuclear Security, IAEA |