



61st ANNUAL MEETING

Connection & Collaboration

July 12-16, 2020

AN INTERNATIONAL VIRTUAL EXPERIENCE

Technical Division Legend

FO Facility Operations	MC&A Materials Control & Accountability
ET Education & Training	NSPP Nuclear Security and Physical Protection
ISD International Safeguards	PT Packaging, Transportation & Disposition
NAC Nonproliferation & Arms Control	XX Cross Cutting Topics

Times in EDT Sunday, July 12, 2020

10:00 am - 12:00 pm	Technical Division Meetings	Chairs and Deputies
10:00 am - 11:30 am	ISD International Safeguards	Irmgard Niemeyer; Zoe Gastelum
10:00 am - 11:30 am	NSPP Nuclear Security & Physical Protection	Joseph Rivers; Brandon Gorton
10:30 am - 12:00 pm	MC&A Materials Control & Accountability	Phil Gibbs
11:00 am - 12:00 pm	NAC Nonproliferation & Arms Control	Mona Dreicer, Nina Rosenberg
11:00 am - 12:00 pm	FO Facility Operations	Ben Watts
12:30 pm - 1:00 pm	Joint DA/NDA Working Group	Brian Ticknor / Susan Smith
12:30 pm - 2:00 pm	Containment and Surveillance Working Group	Heidi Smartt
1:00 pm - 2:00 pm	DA Working Group	Brian Ticknor
1:00 pm - 2:00 pm	NDA Working Group	Susan Smith
2:30 pm - 4:00 pm	Education & Training Committee	Amanda Sayre
2:30 pm - 4:00 pm	Joint 2020 ANSI INMM ASC N15 & INMM N15-5.1 Subcommittee (*Conducted via WebEx)	Melanie May
2:30 pm - 5:45 pm	Special Event: WORKSHOP: Policy and Technical Fundamentals of International Nuclear Safeguards (Additional Registration and Fee Required)	Dr Sunil Chirayath, Texas A&M University
4:00pm - 6:00pm	Open House: Speaker, Chair and Moderator Q&A	
6:00 pm - 7:00 pm	Special Event President's Reception	Cary Crawford, INMM President
	Cary Crawford INMM President	
	Marco Marzo Brazilian-Argentine Agency for Accounting and Control of Nuclear Material (ABACC)	
	Martin Porter World Nuclear Transport Institute	
	Roger Howsley World Institute for Nuclear Security	
	Willem Janssens European Safeguards R&D Association	

*If interested in attending the ANSI Subcommittee meeting conducted WebEx, please contact meetings@inmm.org to sign up.



The President's Reception 6:00 pm

Presented by Cary Crawford, INMM President

Marco Marzo Brazilian-Argentine Agency for Accounting and Control of Nuclear Material (ABACC)	Roger Howsley World Institute for Nuclear Security
Martin Porter World Nuclear Transport Institute	Willem Janssens European Safeguards R&D Association

THANK YOU TO OUR EXHIBITORS

SPECIAL EVENTS TODAY

9:30 am - 10:00 am
10:00 am - 10:45 am

Virtual Waiting Room Open for Chat and Networking
Welcoming Remarks and Recognitions
Speaker: Cary Crawford, INMM President



10:45 am - 12:15 pm

Opening Plenary



Speaker: Ambassador Gustavo Zlauvinen
President-designate of the 10th Review Conference
of the Nuclear Nonproliferation Treaty (NPT)



Co-Moderator: Dr. Irmgard Niemeyer, Forschungszentrum Jülich GmbH



Speaker: Administrator Lisa E. Gordon-Hagerty
Under Secretary for Nuclear Security of the U.S. Department of Energy (DOE)
and Administrator of the National Nuclear Security Administration



Co-Moderator: Dr. Mona Dreicer, Lawrence Livermore National Laboratory

12:15 pm - 12:30 pm

Break

12:30 pm - 2:10 pm

Concurrent I

NSPP	Session A	Nuclear Security - Looking Ahead	Co-Chair: Rhonda Evans, WINS Co-Chair: Marshall Kohen, US NRC
1443		IAEA Nuclear Security Recommendations (INFCIRC/225): The Next Generation	Nickolas Roth
1447		Voices Of Nuclear Security: Perspectives From The Field	Jessica Bufford
1213		Trust Models In Information Systems Security - A Survey	Uchechukwu Arincze
1202		Securing high risk facilities from drone threats	Leo McCloskey
1252		The History Of Guns, Gates, And Guards In Nuclear Security	Joseph Sandoval
ISD	Session B	Safeguards at the State Level	Co-Chair: Therese Renis, IAEA Co-Chair: George Anzelon, LLNL
1255		Enhancing Consistency In The Development Of State-level Safeguards Approaches	Therese A. Renis
1216		Integrating Acquisition Pathway Analysis Into The Cyclus Fuel Cycle Simulator	Kathryn A. Mumma
1340		Building A New State System Of Accountancy For And Control Of Nuclear Material (SSAC)	Alan Homer
1292		Capability In The United Kingdom Implementation Of A Modified SQP In The Caribbean French Territories (INFCIRC/718/Mod.1)	Julie Oddou
122		Natural Uranium Heavy Water Reactor Reference Document To Assist IAEA SEG Assessments	Sam Bays

Monday, July 13, 2020 Continued

Session Chairs

12:30 pm - 2:10 pm

FO	Session C	Impacts on Facility Operations		Co-Chair: Brad Patton, ORNL Co-Chair: Jackie Shipwash, Tetra Tech
	1378	Alternative Spent Nuclear Fuel Disposition Options At The Savannah River Site	Catherine Mussi	
	186	Deactivation Of Building 9206 - A Manhattan Project Era Facility	Michael Malone	
	1217	Considerations When Implementing Shift Work In Nuclear Operations	Brandon Stockwell	
	Session D	JNMM Roundtable (By Invitation)		Moderator: Markku Koskelo, JNMM Editor
NAC	Session E	Strategic Trade Controls		Co-Chair: Willem Janssens, JRC Co-Chair: Amanda Sayre, PNNL
	144	A Positive Effect Of Icp On The Export Control	Kim Inchul	
	166	NRC Preparations For The Export Of Advanced Reactors	Lauren Mayros	
XX	Session F	Panel: Success in Eliminating Weapons-Usable Nuclear Material and M3's Future Role in Nonproliferation		Moderator: Juliette Bronchtein, NNSA
		Conversion of Research Reactors and Medical Isotope Production Facilities	Christopher Landers, NNSA M3 Office of Conversion	
		International Nuclear Material Removal and Consolidation	Scott Roecker, NNSA M3 Office of Nuclear Material Removal	
		Disposition of Highly Enriched Uranium and Plutonium	Virginia Kay, NNSA M3 Office of Material Disposition	

2:15 - 2:45 pm

Dedicated Exhibit Hall Hours

2:45 pm - 4:25 pm

Concurrent II				
NSPP	Session A	Security Design and Concepts		Co-Chair: KJ Maddux, IB3 Global Co-Chair: Susan Caskey, SNL
	1196	Design Principles And Practices To Enhance Nuclear Security	Alan Evans	
	1253	Nuclear Weapons Physical Protection Principles	Joseph Sandoval	
	153	The Security Professional	Richard Donovan	
	1194	Using Vital Area Identification Insights In Security Effectiveness Evaluation	Alan Evans	
	157	Empirical Insights For A Multi-layered Network Complex Systems Model For Engineering Nuclear Security Systems	Adam Williams	
NAC	Session B	Panel: The Nonproliferation Regime		Co-Moderator: Julie Oddou, CTE Co-Moderator: Alex Bednarek, NTI
	1385	Fifty Years Of NPT Safeguards	Mark Goodman	
	1347	Connecting The Pillars Of The Npt: Enabling Multilateral Disarmament Verification While Respecting Nonproliferation Obligations	Corey Hinderstein	
	1434	Toward Some Proactive Strategies For Reducing The Risk Of Nuclear Proliferation	Ricardo Lopez	
E&T	Session C	Training Contributions and Collaborations		Co-Chair: Jesse Bland, SNL Co-Chair: Malinda Devaney, ORNL
	124	Good Practices On Hrd Support Activities Of Iscn	Yosuke Naoi	
	1437	Adapting To Response - Customized Alarm Response Training	Jimmie Williams	
	1438	Integrated Response Training - A Flexible Approach	Daniel Romano	
	1440	An Arms Control Primer	Kelly Jenkins	



Women of Mass Distinction
6:30 pm
with Ambassador Bonnie Jenkins

THANK YOU TO OUR EXHIBITORS

SPECIAL EVENTS TODAY

Monday, July 13, 2020 Continued

Session Chairs

2:45 pm - 4:25 pm

ISD	Session D	Delayed Gamma Ray Spectroscopy		Co-Chair: Stefan Nonneman, JRC Co-Chair: Susan Smith, ORNL
	1334	JAEA-JRC Collaborative Development Of Delayed Gamma-ray Spectroscopy For Nuclear Material Evaluation: Project Overview	Douglas C. Rodriguez	
	1336	JAEA-JRC Collaborative Development Of Delayed Gamma-ray Spectroscopy For Nuclear Material Evaluation: DGS Technique, Requirements, And Interrogation Time Patterns	Douglas C. Rodriguez	
	1323	JAEA-JRC Collaborative Development Of Delayed Gamma-ray Spectroscopy For Nuclear Material Evaluation: Fissile Mass Estimation With Uranium Samples	Fabiana Rossi	
	1441	JAEA-JRC Collaborative Development Of Delayed Gamma-ray Spectroscopy For Nuclear Material Evaluation: Fundamental Instrumentation Of A DGS System	Tohn Takahashi	
MCA	Session E	Neutron Multiplicity Measurement Methods (I)		Co-Chair: Robert Weinmann-Smith, LANL Co-Chair: Alexis Trahan, LANL
	188	Measured Nondestructive Assay Of 237 Np Using Organic Scintillators And Active Neutron Multiplicity Counting	Michael Hua	
	1282	Calibration Of Active Well Coincidence Counter (AWCC) With Highly Enriched Uranium (HEU) And AmBe Active Neutron Interrogation Source	Jay Joshi	
	1339	Experimental Demonstration Of Neutron Multiplicity Counting In The Current Mode Of Fission Chambers	Máté Szieberth	
	1455	A Random Forest Approach For Estimating Leakage Multiplication Of Cylinders	Cole J. Thompson	
NSPP	Session F	Panel: Nuclear Security: The Next Ten Years		Moderator: Jessica Bufford, NTI
	1317	Nuclear Security: The Next Ten Years Panelist 1: Laura Holgate, Nuclear Threat Initiative Panelist 2: Sabariah Kader Ibrahim, Malaysia Nuclear Agency Panelist 3: Nickolas Roth, Stimson Institute Panelist 4: Dan Johnson, World Institute for Nuclear Security	Jessica Bufford	

4:30 pm - 5:00 pm

Dedicated Exhibit Hall Hours

5:00 pm - 6:20 pm

Concurrent III				
NAC	Session A	Arms Control Verification		Co-Chair: Jennifer Matzel, LLNL Co-Chair: Bonnie Canion, LLNL
	147	A Modular Approach To Trusted System Design For Arms Control Treaty Verification	Kyle Polack	
	1287	Facilitating International Cooperation Through A Metrics Framework For Comparative Assessment Of Nuclear Arms Control Verification Methods	Ben Bonin	
	1289	Information Theoretic Metric Of Verification System Performance	Jason Reinhardt	
FO	Session B	Strategies for Nuclear and Radioactive Materials Management		Co-Chair: Todd Dunivan, SNL Co-Chair: Jackie Shipwash, TetraTech
	1311	Extraction Of Pm-147 From Srs Nuclear Material Management Programs	Kalee Fenker	
	1208	Qualitative Options Analysis Approaches For Managing Nuclear Materials	Sharon Robinson	
	1444	TBD Materials at Y-12 National Security Complex	Adam Bruce	
	1364	Mobile Source Tracking For The Well Logging And Industrial Radiography Industries	Emiliano Santiago-Rojas	
MCA	Session C	Neutron Multiplicity Measurement Methods (II)		Co-Chair: Sean Obrien, ORNL Co-Chair: Amanda Rynes, INL
	189	Bayesian Bottom-up Uncertainty Quantification In Neutron Multiplicity Measurements: Providing Uncertainty Distributions And Correlations In All The Assay-item Parameters	Andrea Favalli	
	1278	Developments In The Calculation Of The Multiplicity Moments In Space-dependent (non-point) Models	Imre Pazsit	
	1281	Multiplicity-dependent Prompt Fission Neutron Spectrum And Applications To Multiplicity Counting	Stefano Marin	
6:30pm - 7:30pm	Women of Mass Distinction Event			Chair: Susan Pepper, Vice President of INMM
	Speaker:	Ambassador Bonnie Jenkins		
		Discussion to follow		

9:30 am - 10:00 am Virtual Waiting Room Open for Chat and Networking

10:00 am - 10:45 am Morning Plenary



Speaker: Massimo Aparo
IAEA Deputy Director General and Head of the Department of Safeguards



Co-Moderator: Carrie Mathews, Pacific Northwest National Laboratory



Co-Moderator: Susan Pepper, Brookhaven National Laboratory

10:50 am - 12:10 pm

Concurrent IV

NSPP	Session A	Preparing for the Future of Security through Structured Assessments		Co-Chair: Joe Sandoval, SNL Co-Chair: Tim Harris, US NRC
	1195	Emerging Threats, Technologies And Opportunities In The Context Of International Nuclear Security	Olga Martin	
	143	The Effort Made To Evaluate The Level Of Employees Understanding On Nuclear Security Culture After Conducting Self-assessment And Internalization Of Nuclear Security Culture At Serpong Nuclear Research Complex - National Nuclear Energy Agency Of Indonesia	Fahdlar Alfaruqi	
	127	The International Atomic Energy Agency's Nuclear Security Program Could Improve Prioritization, Performance Measurement And Reporting, And Funding Stabilization	Alisa Beyninson	
	1329	Development Of Metrics And Requirements To Enable Down-selection And Evaluation Of Commercial Counter-unmanned Aircraft Systems Products	John Russell	
XX	Session B	Panel: Implications of COVID-19 on the Nuclear Materials Management Community		Co-Moderator: Zoe Gastelum, SNL Co-Moderator: Megan Porter, IAEA
		Panelists: Safeguards: Mr. John Coyne, International Atomic Energy Agency Department of Safeguards Regulatory Authority: Dr. Mina Golshan, United Kingdom Office for Nuclear Regulation Research & Development: Mr. Keith Freier, Pacific Northwest National Laboratory Physical Security: Mr. Morris Hassler, Y-12 National Security Complex Pantex Plant Facility Operations: Mr. Ian Gordon, International Atomic Energy Agency Department of Nuclear Energy		
PT	Session C	Disposition and Analysis		Co-Chair: Ed Ketuskys SRNL Co-Chair: Melanie Snyder, Consultant
	1377	Immobilization Of Irradiated Heu Graphite Fuel In Kazakhstan	Ken Bateman	
	1341	Removal Of Highly Enriched Uranium From The United Kingdom To The United States	Tiffany Blanchard-Case	
	184	Measurement Of Through-Wall Aerosol Transmission For SCC-Like Geometries	Samuel Durbin	
ISD	Session D	Panel: Opportunities for and Perspectives on Safeguards by Design for Nuclear Fuel Cycle Facilities		Co-Moderator: Karen Hogue, CNS Co-Moderator: James Disser, Consultant
		IAEA Perspectives NRC Perspectives Small Modular Reactor Industry Perspectives Facility Operations Perspective R&D Community Perspectives	Therese Renis, IAEA James Rubenstone, US NRC Kevin Deyette, Nuscale Marko Hamalainen, STUK Don Kovacic, ORNL	
NSPP	Session E	Insider INS Program (I)		Co-Chair: Patrick Lynch, ORNL Co-Chair: Dick Donovan, US DOE
	1396	Mitigating Insider Threats At The Scientific Institution Jipnr Sosny	Vasilij Zenevic	
	1393	Nuclear Security Culture At The Joint Institute Of Energy And Nuclear Research - Sosny	Tamara Korbut	
	1417	Human Reliability In The Middle East	Al-Sharif Nasser bin Nasser	
	1404	Regional Leadership: Ukraine's Role In Increasing Insider Threat Mitigation Efforts	Nataliia Klos	

Tuesday, July 14, 2020 Continued

Session Chairs

10:50 am - 12:10 pm

FO	Session F	Nuclear Materials Archive and Forensics		Co-Chair: Sharon Robinson, ORNL Co-Chair: Jon Schwantes, PNNL
	1309	Y-12 Subsampling Of National Nuclear Material Archive Uranium Samples For High Precision Analysis	David Speaks	
	1207	Selection Process For Samples For The National Nuclear Materials Archive	Bradley Patton	
	1392	Integration Of National Nuclear Materials Archive With Footprint Reduction Missions At NNSA	Kaatrin Abbott	
	1405	Update On Plutonium Isotopic Reference Material Activities Of The NBL Program Office	Peter Mason	

12:10 pm - 12:40 pm

Dedicated Exhibit Hall Hours

12:40 pm - 2:00 pm

Concurrent V				
NSPP	Session A	Decommissioning: Security Considerations		Co-Chair: Al Garrett, PNNL Co-Chair: Roberta Burbank, PNNL
	1380	WINS Guidance on Nuclear Security During Decommissioning	Daniel Johnson	
	1410	Nuclear Fuel Cycle and Research Facility Decommissioning in the Context of International Nuclear Security	Eric Howden	
	1368	Nuclear Security During Decommissioning Fuel Cycle Facilities - Best Practices and Considerations	Allyn Milojevich	
NAC	Session B	Panel: Up and Coming Research on Export Controls		Co-Moderator: Paige Gasser, LLNL Co-Moderator: Meili Swanson, ORNL
	1370	Panelists: Amanda Sayre, PNNL Brian Starks, ORNL Karla Niemi, LANL Andrea Viski, Strategic Trade Research Institute		
ISD	Session C	Emerging Technology in Safeguards (I)		Co-Chair: Christopher Ramos, NNSA Co-Chair: Angela Lousteau, ORNL
	183	Recent Progress In The Defense Nuclear Nonproliferation Research And Development Initiatives In Data Science For Safeguards	Christopher Ramos	
	177	Emerging Technologies Workshop 2020: Exploring New Solutions For The IAEA Department Of Safeguards	Chad Haddal	
	115	Evaluating The Cognitive Impacts Of Errors From Analytical Tools In The International Nuclear Safeguards Domain	Zoe N. Gastelum	
	1250	Topic Modeling with Natural Language Processing for Identification of Nuclear Proliferation- Relevant Scientific and Technical Publications	Jonathan Bisila	
NSPP	Session D	Insider INS Program (II)		Co-Chair: Nickolas Roth, Stimson Center Co-Chair: Jeremy Edwards, UK NNL
	1397	Jordanian Experience With Insider Threat Mitigation Programs At The Jrtr	Dr. Samer Kahook	
	1354	How To React On Signs Of Changes In Behaviour That Might Be Signs Of Concern	Lisa De Laet	
	1355	Actions Undertaken By Belgium In The Area Of Insider Threat Mitigation	Rony Dresselaers	
	1286	Ensuring Security Through Human Elements: Silencing The Guns, Consolidating The Gates And Building Trust In Nigeria	Yusuf Ahmed	
	Session E	Poster Session: Q&A with the Presenters		Co-Chair: Jessica White-Horton, ORNL Co-Chair: Amanda Rynes, INL
		"Big Picture" Group 1: 12:40 pm - 1:20 pm "Implementation and Operations" Group 2: 1:20 pm - 2:00 pm		
	Session F	Panel: Modernizing Nuclear Production: Manufacturing Technologies and the Factories of the Future		Co-Moderator: Brittany Boser, NNSA's Defense Programs Co-Moderator: Casey Deering, NNSA's Defense Programs
		Panelists: Gerald DeVault, Senior Technical Advisor for the Development-Engineering Organization, Consolidated Nuclear Security Amanda Wu, Materials Scientist, Lawrence Livermore National Laboratory Doug Burkes, Senior Research Engineer, Pacific Northwest National Laboratory Joseph Miller, General Manager, BWXT Advanced Technologies, LLC		

2:00 pm - 2:10 pm

Break

2:10 pm - 3:50 pm				
Concurrent VI				
XX	Session A	Resources for Understanding and Sharing NMM Topics		Co-Chair: Sara Pozzi, University of Michigan Co-Chair: Lovely Umayam, Stimson Center
	1403	A Pocket Handbook For Radioactive Nuclides		Elizabeth McCutchan
	1349	Advancing Multimedia For Nonproliferation Training		Jessica White-Horton
	161	Iscn's 10 Year-activities For Strengthening Nuclear Non-proliferation And Nuclear Security And Supporting Denuclearization		Masato Hori
	1413	20 Years Of Inpro: An Integrated Forward Looking Activity Building A Framework For Sustainable Nuclear Power In The 21st Century		Brian Boyer
MCA	Session B	Neutron Measurements and Instrumentation		Co-Chair: Azaree Lintereur, Penn State Co-Chair: Louise Worrall, ORNL
	1205	Neutron Measurements on Boron Carbide to Pu waste form		Tim Aucott
	114	Initial Results Of Nondestructive Assay Of Commercial Spent Nuclear Fuel With Differential Die-away (DDA) Instrument Oral Presentation		Garrett McMath
	163	Analysis Of Fast Neutron Data From A Fresh Fuel Assembly		Sean Walston
	169	Multi Sphere Neutron Spectrometer Based On Elpasolite Scintillators Oral Presentation		Stuti Surani
	1224	Epithermal Neutron Resonance Analysis Using A Compact DT Generator		Ethan Klein
NSPP	Session C	Radioactive Material Detection and Transportation		Co-Chair: Ed Lyman, UCS Co-Chair: Alan Evans, SNL
	1408	The International Efforts On Transportation Security		David Duhamel
	1267	Analysis Of Adversary Attack Scenarios For Radiological Dispersal Device Assets		Jason Harris
	1314	Radiation Signature Training Device Gamma Equivalent Spheres		Chris Blessinger
	1360	Detection And Mitigation Of X-ray Scanner Interference And Gamma-ray Background Suppression In Radiation Portal Monitors		Michael Kuhn
ISD	Session D	Panel: Distributed Ledger Technology in Safeguards		Co-Moderator: Sarah Frazar, PNNL Co-Moderator: Chad Haddal, IAEA
	1296	Evaluating potential applications of DLT for safeguards		Cindy Vestergaard, Stimson
	1346	Using Public Blockchain For The Management Of Public Key Infrastructure To Strengthen Nuclear Safeguards		Roberto Spigolon, JRC
	1262	Developing an electronic distributed ledger for transit matching SLAFKA: DLT Prototype for Nuclear Safeguards		Rustam Goychayev, PNNL Cindy Vestergaard, Stimson Olli Okko, STUK Nicholas Pattengale, SNL
		DLT Activities at Sandia National Laboratory		
ISD	Session E	Emerging Technology for Safeguards (II)		Co-Chair: Heidi Smartt, SNL Co-Chair: Shirley Johnson, Consultant
	1190	Developing Signatures-based Safeguards For Enrichment Facilities		Nathan Shoman
	181	Synthetic Training Images for Real-World Object Detection		Zoe Gastelum
	1369	Identifying Nuclear Proliferation Using Inter-facility Material Transportation And Machine Learning Classification		Anna Caldwell-Overdier
	1422	Consideration Of Cybersecurity Risks With The Use Of Emerging Technologies		Kim Lawson-Jenkins
	1305	Garbled Circuits For Enabling Privacy Preserving Safeguards		Mitchell Negus
NSPP	Session F	The Human Dimension in Nuclear Security		Co-Chair: Dan Johnson, WINS Co-Chair: Marshall Kohen, US NRC
	1324	The Human Element Of Transportation Security		Karen Kaldenbach
	1192	A New Approach To Insider Threat Mitigation: Lessons Learned From Counterintelligence Theory		Noelle Camp
	162	The Case For A 2s Approach To Coordination Of Nuclear Safety And Nuclear Security Cultures		Paul Ebel
	152	Policy Choices - Their Impact On Implementation And Program Assessment		Richard Donovan
	1310	Identity Science Research At The Oak Ridge National Laboratory		Hector Santos Villalobos
3:50 pm - 4:20 pm				
Dedicated Exhibit Hall Hours				

Tuesday, July 14, 2020 Continued

Session Chairs

4:20 pm - 5:40 pm		Concurrent VII			
4:20 pm - 5:40 pm	FO	Session A	Facility Operations (I)	Co-Chair: Catherine Mussi, SRNL Co-Chair: Jackie Shipwash, Tetra Tech	
		1206	Management Of Fissionable Equivalent Mass Materials At Oak Ridge National Laboratory	Brad Patton	
		136	Risks and Opportunities in the Area of NMC&A Arising from Brexit	Richard Last	
	1431	Wall Correction In Enrichment Measurements Based On The Enrichment Meter Principle	Ramkumar Venkataraman		
	MCA	Session B	Nuclear Material Holdup Determinations (II)	Co-Chair: Michael Hamel, SNL Co-Chair: Susan Smith, ORNL	
		1426	Gamma Ray Imaging Based Methods To Improve The Accuracy Of Uranium Holdup Quantification	Ramkumar Venkataraman	
		1330	Fault Detection Methods To Accurately Detect And Quantify Holdup In Advanced Nuclear Material Recycle Facilities	Grey Batie	
		1433	Summary Of The 2018 Technical Workshop On Improving Holdup Monitoring In The Us	Angela Lousteau	
		105	Study On SGS With Digital Twin	Zhongqi Wang	
	NSPP	Session C	Nuclear Security in Operation	Co-Chair: Paul Ebel, BE Inc. Co-Chair: Kevin Deyette, Nuscale Inc.	
		1227	Review Paper On Human Reliability Assessment Tool Development	Archana Yadav	
		1304	Harmonizing Maritime And Nuclear Security For The Physical Protection Of Floating Nuclear Power Plants	Marc Fialkoff	
1419		The Risks Of Downsizing Security For New Nuclear Reactors	Ed Lyman		
ISD	Session D	Advanced Technology for Monitoring Nuclear Material	Co-Chair: Garrett McMath, LANL Co-Chair: Tina Hernandez, SNL		
	1245	Accurate localization of safeguards containers using battery-free RF tags	Faranak Nekoogar		
	1266	Laser curtain for containment advanced technology: testing for dual use as a component at spent fuel dry storage in Atucha NPP	Marcos Moreira		
	141	Visually Obvious Tamper-indicating enclosure based on sensitivity	Heidi Smartt		
	1366	Neutron Detection Monitoring Outside Of Containment Of A Power Reactor	Bryan van der Ende		
	1279	The Ait Facility For Remote Monitoring Of Nuclear Reactors At The Boulby Underground Laboratory	Igor Jovanovic		

5:40 pm - 6:00 pm Dedicated Exhibit Hall Hours

6:00 - 7:00 pm Annual Business Meeting Chair: Cary Crawford, INMM President



Annual Business Meeting
6:00 pm

Raffle Alert:
(2) Free 2020/2021 INMM Memberships!

THANK YOU TO OUR EXHIBITORS

SPECIAL EVENTS TODAY

9:00 am - 9:50 am INMM Northeast Chapter Meeting (*Conducted via WebEx)
 9:30 am - 10:00 am Virtual Waiting Room Open for Chat and Networking

10:00 am - 10:45 am Morning Plenary



Speaker: Dr. Rita Baranwal
 Assistant Secretary for the Office of Nuclear Energy in the U.S. Department of Energy (DOE)



Co-Moderators to be Announced
 Co-Moderator: Mark Schanfein, Idaho National Laboratory



Co-Moderator: Lawrence Satkowiak, Oak Ridge National Laboratory

10:50 am - 12:10 pm

Concurrent VIII

MCA	Session A	Analytical Measurements and Reference Materials (I)	Co-Chair: Jim Rubenstone, NRC Co-Chair: Joe Giaquinto, ORNL
109	Quantitative And Qualitative Analysis Using Fp-xrf For Nuclear Forensic Preliminary Characterization	So-Yeon Shin	
1246	The Role Of The NBL Program Office As A Collaborator With ORNL In Producing And Characterizing Highly-enriched 233U Non-destruction Analysis Sealed Sources As A Certified Reference Material	Michael Holland	
1316	Fitness For Purpose: Overview Of Astm Guides For Quality Assurance Of Data From Nuclear Analytical Laboratories	Michael Brisson	
1343	Innovations In Nuclear Reference Materials	Maria Morales-Arteaga	
1386	A Review Of Standards For Analysis Of U And Pu Concentration And Isotopic Composition By Thermal Ionization Mass Spectrometry	Rebecca Thomas	
NSPP	Session B	Portal Monitoring	Co-Chair: Marc Wonders, NNSA Co-Chair: Adam Williamson, SNL Co-Chair: Paul Dimmerling, ORNL
1243	Lessons Learned From Testing And Evaluation Of Aftermarket Components For Use In Border Monitoring Radiation Detection Equipment	Jason Messimore	
112	Nuclear Interdiction Through Relocatable Detectors	Paul Johns	
1299	Minimum Detectable Quantity Calculation For Radiation Portal Monitors	Chris Blessinger	
1276	Multilateral Testing Workshop On Relocatable Portal Monitors	Jennifer Erchinger	
XX	Session C	Small Modular Reactors - Changing the Game	Co-Chair: Mark Schanfein, INL Co-Chair: Anagha Iyengar, NNSA
103	Feasibility Of Generation IV Small Modular Reactors As A Path To Achieving Energy Justice	Ezra Cockram	
168	Small Modular Reactor (SMR): Clean, Compact, and Innovative Alternative	Amit K. Shah	
156	Security, Safety, And Safeguards (3s) Risk Analysis For Portable Nuclear Reactors	Jesse Bland	
1249	Design Information Verification At Small Modular Reactors	Ty Otto	
NAC	Session D	CTBT Atmospheric Monitoring	Co-Chair: Boxue Liu, CTBTO Co-Chair: Nina Rosenberg, LANL Moderator: Boxue Liu
1342	Panel: Atmospheric Radionuclide Monitoring Technologies And Methods In Use For CTBT Verification Panelists: Theodore W. Bowyer, Pacific Northwest National Laboratory Anders Ringbom, Swedish Defence Research Agency Jolanta Kusmierczyk-Michulec, CTBTO Hongmo Park, Korea Institute of Nuclear Safety, Daejeon		
134	Calculation Of Isotopic Ratios Of Fission Products Detected At Ims Radionuclide Stations	Boxue Liu	
1283	Next Generation Noble Gas Systems Acceptance At The CTBTO	Nikolaus Hermanspahn	

Wednesday, July 15, 2020 Continued

Session Chairs

10:50 am - 12:10 pm

ISD	Session E	Panel: 9th INMM-ESARDA-INMMJ Workshop	Co-Moderator: Tomonori Iwamoto, JNFL Co-Moderator: Irmgard Niemeyer, Forschungszentrum Juelich GmbH
		Panelists: Tomonori Iwamoto, INMMJ Host/Coordinator Willem Janssens, ESARDA Coordinator Julie Oddou, WG1 Mona Dreicer, WG3 David Drury, WG4	

12:10 pm - 12:40 pm

Dedicated Exhibit Hall Hours

12:40 pm - 2:00 pm

Concurrent IX

MCA	Session A	Analytical Measurements and Reference Materials (II)	Co-Chair: Stephen Vogt, PNNL Co-Chair: Tom Pham, NRC
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1398	Establishing Metrological Traceability Using Certified Reference Materials (CRMs): The Role Of The NBL Program Office As A CRM Producer	Robert Watters
1394	An Introduction To Mass Spectrometry Techniques For Analysis Of Nuclear Materials	Rebecca Thomas
1409	Uncertainty Quantification Of Plutonium Inventory Calculations Through Xenon Gas Sampling Of Underground Waste Tanks Containing High-level Radioactive Waste From Uranium Reprocessing	Henry Rysz

ETK	Session B	University Initiatives	Co-Chair: Alex Bednarek, NTI Co-Chair: Jessica Bufford, NTI
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174	The Advanced Nuclear 3S Education And Training Program Of Tokyo Tech	Chi Young Han
1248	Sandia National Laboratories Early Career University Faculty Mentoring Program In International Safeguards	Azaree Lintereur
119	Advanced Nuclear Security Program At The University Of New Mexico	Alan Evans
1191	Importance Of Education And Training For Sustaining Nuclear Security Program.	Arpita Datta

MCA	Session C	Gamma Measurements and Methods	Co-Chair: Eduardo Padilla, SNL Co-Chair: Ram Venkatarmam, ORNL
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100	Use Of High Resolution CdZnTe OEM Modules In Safeguards	David Goodman
1215	Computational Methods For Pin Identification In Passive Gamma Emission Tomography	Ming Fang
1275	Non-destructive Characterization Of Irradiated Charges From The X-10 Reactor	Tim Aucott
1421	Novel Segmented Gamma Scanner (SGS) Techniques For Small And Large Containers Using A Modified Traditional SGS	John Kirkpatrick

NAC	Session D	Verification Exercises and Games	Co-Chair: Corey Hinderstein, NTI Co-Chair: Michele Smith, NNSA
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1261	Moving From Paper To Practice In Nuclear Disarmament Verification: NuDiVe - The Nuclear Disarmament Verification Exercise	Irmgard Niemeyer
125	Analysis Of A Discrete Time Critical Time Se-No Inspection Game	Thomas Krieger
1436	International Exercise On The Analysis Of Uranium Ore Concentrates For Nuclear Forensics	Ruth Kips

	Session E	Poster Session: Q&A with the Presenters	Co-Chair: Jessica White-Horton, ORNL Co-Chair: Amanda Rynes, INL
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["Better Detection" Group 3: 12:40 pm - 1:20 pm](#)
["Better Detection" Group 4: 1:20 pm - 2:00 pm](#)

2:00 pm - 2:30 pm

Dedicated Exhibit Hall Hours

2:30 pm - 3:50 pm

Concurrent X

MCA	Session A	Other Nondestructive Measurement Methods for Nuclear Materials (I)	Co-Chair: David Hanks, NRC Co-Chair: Tim Aucott, SRNL
	1265	Advances In Microcalorimeter Gamma Spectroscopy	Mark Croce
	1293	Investigation Of Microcalorimeter Absorber Performance	Michael Hamel
	1294	Quantitative Analysis Of Uranium And Plutonium Using Microcalorimeter Decay Energy Spectroscopy	Mark Croce
ISD	Session B	Innovations in Safeguards	Co-Chair: Sunil Chirayath, TAMU Co-Chair: Michael Whitaker, ORNL
	1260	Safeguards Approach For Accelerator Driven Systems	David R. Farley
	1198	Utilization Of 234 U In Gaseous Centrifuge Enrichment Plant Safeguards	Houston G. Wood
	1197	In-field Collection And Analysis Of Uranium Hexafluoride Cylinder Head Space Gas For The Evaluation Of Fill Date	Glenn A. Fugate
	1259	Pattern Of Life Analysis Of A Facility Under Nuclear Safeguards	Rosalyn Rael
MCA / NAC	Session C	Nuclear Data for Nonproliferation	Co-Chair: Mark Englemann, PNNL Co-Chair: Jennifer Ladd-Lively, ORNL
	1313	Applied Nuclear Data Activities At The Los Alamos Neutron Science Center	Matthew Devlin
	1352	Workshop For Applied Nuclear Data Activities	Catherine Romano
	1359	Nuclear Data Scoping Studies For Nonproliferation	Catherine Romano
	1399	Mobile And Web Services For Thermal Neutron Capture Decay	Benjamin Shu
XX	Session D	Machine Learning and AI for Safeguards and Nuclear Material Accountancy	Co-Chair: Angela Waterworth, NNSA Co-Chair: COL Benjamin Miller, US Army Nuclear & Countering WMD Agency
	1210	Industry's Use Of Machine Learning And Implications For International Safeguards	Michael Higgins
	118	Advances In Machine Learning For Safeguarding A Purex Reprocessing Facility	Nathan Shoman
	1211	Machine Learning Approaches To Determine Missing Material From Nuclear Fuel Assemblies	Matthew Durbin
	1379	Machine Learning Approaches For Nuclear Material Accounting Data From Irradiation And Reprocessing	Adam Dresher

3:50 pm - 4:20 pm

Dedicated Exhibit Hall Hours

4:20 pm - 5:40 pm				
Concurrent XI				
MCA	Session A	Other Nondestructive Measurement Methods for Nuclear Materials (II)		Co-Chair: Jesse Bland, SNL Co-Chair: Suzanne Ani, NRC
	129	In-field Alpha Spectrometry To Assess Uranium Enrichment In Uranium Hexafluoride	David Chichester	
	132	Silicon Photomultipliers As An Alternative To Photomultiplier Tubes For Nuclear Safeguards Applications	Kareem Kazkaz	
	179	Electron Paramagnetic Resonance (epr) Spectroscopy For Nda Measurements Of Stable Fission Products	Tatiana Levitskaia	
FO	Session B	Material Minimization and Disposition		Co-Chair: Sharon Robinson, ORNL Co-Chair: Jackie Shipwash, Tetra Tech
	1254	Radiation Dose Management Planning For Plutonium Disposition Containers	Jeff Allender	
	1290	Charting The Best Path Forward For Surplus Plutonium Disposition	Edwin Lyman	
	1388	An Innovative Approach To Weapons-Usable Nuclear Materials Minimization	Ian Kapuza	
	1365	Low Enriched U-10mo Fuel Plate Characterization And Review Of De-cladding For Research Reactor Applications	Lisa Ward	
	1406	Transient Physics Studies Using Hyacinth Critical FacilityWith Low Enriched Uranium Fuel	Yousry Gohar	
XX	Session C	Panel: Initial Lessons Learned from a Cesium Incident in Seattle		Co-Moderator: Nathan Russo, PNNL Co-Moderator: Nina Rosenberg, LANL
		Panelists: Nathan Russo, PNNL Nick Butler, NNSA Mary Hockaday, LANL Phil Campbell, University of Washington Katia Harb, University of Washington		
XX	Session D	Machine Learning for Nuclear Material Characterization		Co-Chair: Yana Feldman, LLNL Co-Chair: Hannah Hale, ORNL
	110	Leveraging Machine Learning Capabilities For The Characterization Of Irradiated Uranium: A Case Study Of Analysis Methods For Nuclear Safeguards And Nuclear Forensics	Adam Drescher	
	1416	Application Of Machine Learning Algorithms To Identification Of Spent Fuel Reactor Of Origin	Pavel Grechanuk	



**INMM and ESARDA
Present**

**Joint Annual Meeting
August 21-26, 2020
Vienna, Austria**



THANK YOU TO OUR EXHIBITORS **SAVE THE DATE**

9:30 am - 10:00 am	Virtual Waiting Room Open for Chat and Networking			Session Chairs
10:00 am - 11:40 am	Concurrent XII			Session Chairs
	NSPP	Session A	Threat and Performance Assessments	Co-Chair: Chris Behan, WINS Co-Chair: Penny McKenzie, PNNL
		1240	Interconnected Of Things - The Fastest Growing Electronic Attack Surface	Penny McKenzie
		107	Concerning Implications For The Intelligence Community	Hellen Hanks
		1353	Malicious Threat Anticipation Using An Adaptive Complex Systems Approach	Susan Caskey
		173	The Utility Of Unmanned Aerial Systems (UAS) Within The Civil Nuclear Maritime Transport Security Paradigm	Robert Officer
	XX	Session B	Cyber Security Considerations for the Nuclear Materials Management Community	Co-Chair: Shadya Maldonado, PNNL Co-Chair: Dianna Blair, SNL
		1415	An Analysis Of Cybersecurity Culture On Organizations Managing Critical Infrastructure	Abraham Parbhunath
		1257	The Rise In Cyber Security Risk In The Utilization Of Iot Devices In Nuclear Facilities	Christopher Runyan-Beebe
		1234	Deconstructing The Nuclear Supply Chain Cyber-attack Surface	Shannon Eggers
		138	Innovation In Radiological Security, Part 1 Of 2 - Using A Cloud Solution To Compress The Timely Detection Model	Jamie Wise
		142	Innovation In Radiological Security, Part 2 Of 2 - Insights Into Designing A Cloud-Hosted Platform	Brandon Gorton
	XX	Session C	Better Detection through Modeling and AI	Co-Chair: Mark Engelmann, PNNL Co-Chair: Justin Reed, ANL
		139	Preliminary Results From Invoking Artificial Neural Networks To Measure Insider Threat Mitigation	Shannon Abbot
		1373	Synthetic Data Generation For Inference In Remote Sensing Of Nuclear Non-proliferation Activities	Lee Burke
		1315	Predicting The Power Level Of A Nuclear Reactor Using A Time Series-based Approach	Nidhi Parikh
		1371	Classification Of Dissolution Events Using Fusion Of Effluents Measurements And Classifiers	Nageswara Rao
	PT	Session D	Packaging and Analysis with Panel: Impacts of COVID-19 on Packaging and Transportation	Co-Chair: Dr. Ed Ketusky, SRNL Co-Chair: TBD
		1356	The Use Of Equivalent Safety For The Packaging And Transportation Of Various Radioactive Materials At The Oak Ridge National Laboratory	Bradley Loftin
		111	SNF Intermodal Transportation; Modeling Issues And Enhancements	Daniel Sullivan
			Panel: Impacts of Covid-19 on Packaging and Transportation Impacts to Package Design and Development Transportation Impacts	Paul Blanton, SRNL Daniel Pancake, ANL
	NAC	Session E	Nonproliferation: Russia, China and the Middle East	Co-Chair: Nickolas Roth, Stimson Center Co-Chair: Natacha Peter-Stein, SNL
		1383	A Status Update On TheNTI-CENESS Dialogue On The Future Of U.S.-Russian Cooperation On Peaceful Nuclear Uses	Leon Ratz
		1435	History Of The U.S.-Russian Nuclear Security Cooperation In INMM Archives: A Primer	Dmitry Kovchegin
		1219	Assessing China's Plutonium Separation And Recycling Programs	Hui Zhang
		1321	Verification Of Pu And HEU In North Korea	Jungmin Kang
		1218	The Development Status Of China's Uranium Enrichment	Hui Zhang
	ISD	Session F	Safeguards Considerations for MSRs and Thorium Fuel Cycle	Co-Chair: Ty Otto, PNNL Co-Chair: Don Kovacic, ORNL
		1298	Safeguards Technical Objectives For Thorium Molten Salt Reactor Fuel Cycles	Alicia Swift
		1209	Safeguards Considerations For Thorium Reactors	Laura Micewsku
		130	Feasibility Study Of Nuclear Material Accounting In A Molten Salt Fast Reactor To Develop A Safeguards Approach	Sunil Chirayath
		1222	Safeguards By Design: Multimodal In-process Monitoring Of Molten Salt Composition	Cari Launiere
		1244	Recent Developments In The Design Of A Triple Bubbler Sensor	Ammon Williams

11:40 am - 12:00 pm Dedicated Exhibit Hall Hours

12:00 pm - 1:40 pm		Concurrent XIII		
NSPP	Session A	Detection		Co-Chair: Matt Durbin, Penn State Co-Chair: Michelle Silva, LANL
180		Gamma Film Technology And Range Of Possible Applications	Pablo Florido	
101		Simulation And Determination Of Shielding Requirements For 14.1 MeV D-T Neutron Generators At Pennsylvania State University	Marc Wonders	
128		Qualification Measurements Of Handheld Radiation Detectors For Homeland Security Purposes	Monika Risse	
XX	Session B	Monitoring and Disposal of Spent Nuclear Fuel		Co-Chair: Igor Tsvetkov, IAEA Co-Chair: Kelly Jenkins, PNNL
1264		Safeguards Measures to Monitor Spent Fuel Transfers from Nuclear Power Plants to Dry Storage in Argentina and Brazil	Luis Carlos Machado	
1367		Closing the Fuel Cycle by Burning and Burying Using MuSTAR	Rolland Johnson	
137		Autonomous Inspection Of Nuclear Repositories: Current State Of The Art And Future Directions	Chris (Yu Hsuan) Lee	
133		Challenges in Safeguarding German Dry Interim Storage Facilities	Katharina Aymanns	
ISD	Session C	Pyroprocessing		Co-Chair: Ben Cipiti, SNL Co-Chair: Gustavo Reyes, INL
131		The Role Of Modeling And Simulation In The MPACT 2020 Milestone	Benjamin Cipiti	
1400		Process Models For Electrochemical Recycling Of Used Nuclear Fuel	Laura E. Maggos	
1361		Advanced Integration Of Echem Safeguards Measurements	Philip Leo Lafreniere	
FO	Session D	Mobile SNM Processing		Co-Chair: Jeff Allender, SRS Co-Chair: Jackie Shipwash, Tetra Tech
1390		Automated Processing Of Type B Packages	Michael Dalmoso	
1430		Mobile Plutonium Facility - Lite Project	Doug Lowry	
1451		Development Of A Mobile UF6 Processing Facility And Demonstration Of The System	Tara Walker	
1450		Development Of A UF6 Alumina Conversion Process For The Mobile Uranium Facility	Darrell Simmons	

1:40 pm - 2:00 pm Dedicated Exhibit Hall Hours

2:00 pm - 3:00 pm Closing Plenary Session

	<p>Speaker: Dr. Ernest Moniz Former United States Secretary of Energy Co-Chair and Chief Executive Officer, Nuclear Threat Initiative</p>		<p>Co-Moderator: Jill Hruby, Former Director of Sandia National Laboratories</p>
			<p>Co-Moderator: Nancy Jo Nicholas, Los Alamos National Laboratory</p>

3:00 pm - 3:45 pm Awards Ceremony
Speaker: Susan Pepper, INMM Vice President

4:00 PM Meeting Adjourned

Posters

Tuesday, July 14, 2020 Live Q&A

Group 1: Big Picture 12:40 PM - 1:20 PM	102	The Future Of Energy In The Face Of Climate Change: Links Between Nuclear Power And Water	Claire Tanaka
	108	Estimation On Reprocessing Flow In Yong-byon, North Korea	Seung-Ho Jung
	116	History And Evaluation Of The Performance Testing On The Physical Protection System Of Nuclear Facilities In Republic Of Korea	Seungsik Yu
	135	Development Of Novel Approaches To Anomaly Detection And Surety For Safeguards Data - Year One Results	Natacha Peter Stein
	167	A Brief Analysis On The Connotation Of Nuclear Security	Zhang Jiaqi
	1235	Use Of Technical System Data To Understand Human Operational Factors	Jeremy Patterson
	1374	Gender Champions In Nuclear Policy: Insights From One Year Of Advancing Gender Equity Through Voluntary Commitments	Jack Brosnan
Group 2: Implementation and Operations 1:20 PM - 2:00 PM	172	AMP Application Disparity Across Nuclear Industry	Jelena Vucicevic
	1226	Integrated Safeguards in Ukraine	Oksana Fazly
	1274	A Compact Type B Packaging Design For End-of-life Management Of Disused Radiological Sources	Zenghu Han
	1427	Restoration Of The Savannah River Site's H-Canyon Electrolytic Dissolver Capability As An Option For Spent Nuclear Fuel Disposition	Philip Almond

Wednesday, July 15, 2020 Live Q&A

Group 3: Better Detection 12:40 PM - 1:20 PM	123	Natural Uranium Fuel Fabrication Reference Document To Assist IAEA Seg Assessments	Randall Fielding
	145	Quantification And Verification Measurements Of U-containing Items Using In-situ Objective Counting System, A Non-destructive Assay Method.	Kgolofelo Radzilani
	178	Signature Study For Molten Salt Reactor Safeguards	Michael Dion
	1232	Test GammapiX Tm Radiation Detection Software With Smartphones	Yonggang Cui
	1242	Bnl's Thallium Bromide Semiconductor Radiation Materials And Detectors Characterization	Giuseppe Camarda
	1280	Modeling Molten Salt Reactor Fission Product Removal With SCALE	Pedro Junior Vicente Valdez
Group 4: Better Detection 1:20 PM - 2:00 PM	1300	Improved Radionuclide Detection Using Organic Scintillators	Shaun Clarke
	1306	Optimization Of A K-nearest Neighbors Regression For Improved Discrimination Of Gamma Rays And Neutrons In Organic Scintillators	Matthew Durbin
	1307	Characterization Of Radionuclide Content, Neutron Energy Spectrum And Emission Rate Of Two Am-Li Sources	Andrey Mozhayev
	1312	Investigating The Configuration And Composition Of AmLi Sources MRC-101 And MRC-103	Michael Moore
	1363	Remote Laboratory For Radiation Detection And Physical Security	Anthony Galindo
	1414	Characterizing State Of Health Of Polyvinyl Toluene Scintillators Using Light Readings From Photomultiplier Tube	Ernesto Ordonez Ferrer
	1428	In-growth Of The 59.54 Kev γ -ray Line In Freshly Stripped Samples Of Plutonium	Stephen Croft