

  
**wosmip**

WORKSHOP ON SIGNATURES OF  
MAN-MADE ISOTOPE PRODUCTION



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# Workshop on Signatures of Man-Made Isotope Production

**InterContinental Hotel | Santiago, Chile | December 4-7, 2023**

## Workshop Program



## InterContinental Hotel | Santiago, Chile | December 4-7, 2023

**Monday, December 04 | Day 1**

TIME	SESSION   TITLE   SPEAKERS
10:00 a.m. – 12:00 p.m.	Conference Registration   InterContinental Santiago   Las Americas Foyer   Level 1
1:00 p.m. – 5:00 p.m.	<b>Facility Tour   CCHEN La Reina Facility</b>
1:00 p.m.	Gather in InterContinental Hotel lobby to depart
1:30 p.m.	Load Buses to depart for CCHEN La Reina Facility
2:00 p.m.	Arrive and processing at CCHEN
2:20 p.m. – 2:30 p.m.	<b>Welcome by the Executive Director of CCHEN, Luis Huerta</b>   CCHEN Library
2:35 p.m. – 2:45 p.m.	<b>Group Photo</b>   Events Patio Esplanade
2:45 p.m. – 3:00 p.m.	Designation of groups to access the facilities
3:00 p.m. – 4:30 p.m.	<b>Facility Visits:</b> <ul style="list-style-type: none"> <li>▪ RECH-1 Research Reactor</li> <li>▪ Nuclear Physics and Neutron Spectroscopy Center (CEFNEN)</li> <li>▪ Cyclotron</li> </ul> Once each group finishes the tour, they will join the networking session in the Library.
3:00 p.m. – 4:45 p.m.	<b>Workshop Networking Coffee Break   Digital Poster Session</b>   CCHEN Library <ul style="list-style-type: none"> <li>▪ Cytogenetic Dosimetry   CCHEN</li> <li>▪ Department of Shared Technological Resources   CCHEN</li> <li>▪ Radionuclide Dynamics in Agriculture   CCHEN</li> <li>▪ National Radiological Monitoring Stations   CCHEN</li> <li>▪ International Monitoring System Stations for Radionuclides   CCHEN/OTPCE</li> <li>▪ Source Term Analysis of Xenon (STAX)   INVAP</li> </ul>
4:45 p.m. – 5:00 p.m.	<b>Conclusion of event and bus departure to InterContinental Hotel</b>
7:00 – 9:00 p.m.	<b>Workshop Networking Happy Hour</b>   Pullman Santiago El Bosque Hosted by ISTI



# InterContinental Hotel | Santiago, Chile | December 4-7, 2023

**Tuesday, December 05 | Day 2**

TIME	SESSION   TITLE   SPEAKERS
8:30 a.m.	Conference Registration   InterContinental Santiago   Norte América Ballroom
<b>9:00 a.m. – 11:00 a.m.</b>	<b>Welcome and Workshop Overview  </b> Session Chair: Ted Bowyer (PNNL)
9:00 a.m.	Welcome to WOSMIP IX   Opening Remarks
9:30 a.m.	WOSMIP IX Overview   Ted Bowyer   PNNL
9:45 a.m.	Evolution of WOSMIP: A Journey Through Time   Paul Saey   TU Wien
10:00 a.m.	The International Monitoring System Radionuclide Network  Richard Britton   CTBTO
10:30 a.m.	<i>Workshop Networking Coffee Break / Group Photo</i>
<b>11:00 a.m. – 3:00 p.m.</b>	<b>SESSION I: Backgrounds  </b> Session Chair: Lori Metz (PNNL)
11:00 a.m.	The Problems of Backgrounds at the CTBTO Prepcom   Martin Kalinowski   CTBTO   Virtual
11:30 a.m.	XENAH: Xenon and Environmental Nuclide Analysis at Hartlepool   Matthew Goodwin   AWE   <i>Presented by Ted Bowyer, PNNL</i>
12:00 p.m.	Evaluation of the Phase II test of Xenon International on Mount Schauinsland – Identifying detections of interest   Sofia Brander   BfS
12:25 p.m.	Xenon Background Measurements and Analysis in Nigeria in the Equatorial Region of Africa   Abdulmajeed Ibrahim   Nigerian Nuclear Regulatory Authority
12:50 p.m.	<i>Working Lunch</i>
<b>2:00 p.m. – 3:00 p.m.</b>	<b>WOS-list  </b> Session Chair: Ian Cameron (PNNL)
2:00 p.m.	WOS-list: A repository for xenon source term data   Charlie Doll   PNNL
2:15 p.m.	<b>Roundtable   WOS-list</b> Facilitator: Ian Cameron   PNNL
3:00 p.m. – 3:30 p.m.	<i>Workshop Networking Coffee Break</i>



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Tuesday, December 05 | Day 2, cont.

TIME	SESSION   TITLE   SPEAKERS
3:30 p.m. – 4:15 p.m.	<b>POSTER SESSION</b>   Session Chair: Tami Weber (PNNL)
3:30 p.m. – 3:35 p.m.	Poster Session Introduction   Stanislav Kočvara   VF Nuclear
3:35 p.m. – 4:15 p.m.	<p><b>Poster Session Flash Talks</b></p> <p>Posters:</p> <ol style="list-style-type: none"> <li>1. <i>Andrés Cárdenas Ceballos: Title TBD</i></li> <li>2. <i>Eduardo Carlos Carranza, Eduardo Nassif, Mauro Nuñez, Román Pino, Andrés Zapata, and Ricardo Sagarzazu: The EZEIZA MIPF STAX</i></li> <li>3. <i>Benoît Deconninck: Mo-99 production using a high-power accelerator - The story of a challenging project</i></li> <li>4. <i>Charlie Doll: STAX-2 investigation into the impact of nuclear power plants on nuclear explosion monitoring</i></li> <li>5. <i>Michael Foxe: Utilizing the Man-Made Isotope Transport and IMS Data to Evaluate Climate Change Indicators</i></li> <li>6. <i>Lee Glascoe: Improving Sensor Siting for Plume Detectability with Multiscale Atmospheric Transport Modeling</i></li> <li>7. <i>Anas Hamdouchi: STAX system at IRE</i></li> <li>8. <i>Claus Johannsen: Recovery and performance of the Noble Gas system at CLX19, Easter Island, during and after the COVID-19 pandemic lock-down</i></li> <li>9. <i>Martin Kalinowski: Exploring the use of radioxenon to radioiodine isotopic ratios as additional screening method regarding possible CTBT-relevant events</i></li> <li>10. <i>Joshua Kunkle: Evaluation of methodologies for forming a global view of radionuclide release events and their application to the data fusion pipeline at the CTBTO</i></li> <li>11. <i>Jolanta Kusmierczyk-Michulec: The interhemispheric transport of anthropogenic emissions: additional challenge for source localization</i></li> <li>12. <i>Boxue Liu: Impacts on Characterization of CTBT-relevant Nuclear Events using Isotopic Activity Ratios caused by the Radioxenon Background at IMS Stations</i></li> <li>13. <i>Ahmad Malkawi: Radioisotope Production in Jordan Research reactor update</i></li> <li>14. <i>Christian Maurer: Final results of the 1st Nuclear Explosion Signal Screening Open Inter-Comparison Exercise 2021</i></li> <li>15. <i>Sri Sundari Retnoasih: Estimation of Radioxenon Release Trajectory Plots Based on The Recent Development of the Molten Salt Reactor</i></li> <li>16. <i>Antoinetta Rizzo: Title TBD</i></li> <li>17. <i>Troy Robinson: An Analysis of Potential Sources of Non-fission Product Xenon Radionuclides</i></li> <li>18. <i>Cari Seifert: Lessons learned from an atmospheric radiotracer experiment</i></li> <li>19. <i>Ana Valdés Durán: Potential studies of radioactive elements in soils and sediments, Chile</i></li> <li>20. <i>Jim Zickenfoose: Predictive Maintenance of HPGe-based Systems with Lab-Pulse Services</i></li> </ol>



## InterContinental Hotel | Santiago, Chile | December 4-7, 2023

**Tuesday, December 05 | Day 2, cont.**

TIME	SESSION   TITLE   SPEAKERS
5:15 p.m. – 9:30 p.m.	<b>EVENING EVENTS</b>
5:15 p.m.	Gather in InterContinental Hotel lobby to depart
5:30 p.m.	Load Buses to depart for Club de Campo de Oficiales Quinchamali Fach
6:00 p.m. – 7:30 p.m.	<b>WOSMIP Poster Session Happy Hour</b>   Club de Campo de Oficiales Quinchamali Fach Hosted by VF Nuclear
7:30 p.m. – 9:30 p.m.	<b>Offsite Dinner</b>   Club de Campo de Oficiales Quinchamali Fach Hosted by CCHEN



# InterContinental Hotel | Santiago, Chile | December 4-7, 2023

## Wednesday, December 06 | Day 3

TIME	SESSION   TITLE   SPEAKERS
9:00 a.m. – 1:50 p.m.	<b>SESSION II: Emissions &amp; Sources</b>   Session Chair: Paul Saey (TU Wien)
9:00 a.m.	Review of Xe-135 observations, specifically in Japan, and possible sources that might explain high Xe-135/Xe-133 ratios   Martin Kalinowski   CTBTO   Virtual
9:25 a.m.	Retention of molten salt reactor off-gas   Clayton Hudson   University of Texas, Austin   Virtual
9:50 a.m.	<i>Workshop Networking Coffee Break</i>
10:35 a.m.	XENAH: Current status, results and challenges faced   Andrew Petts   EDF Energy
11:00 a.m.	Possible impact on IMS observations of radioiodine and radioxenon emission produced by spontaneous fission of Cm-244 and Pu-240 and released during spent nuclear fuel (SNF) reprocessing plants   Tatiana Boitsova   CTBTO
11:25 a.m.	IAEA Cooperative Research Program (CRP)   Lori Metz   PNNL
11:50 a.m.	Radiation resistance and thermal durability of silver-exchanged zeolites for trapping radioxenon   Christophe Gueibe   SK CEN
12:10 p.m.	<i>Working Lunch</i>
1:50 p.m. – 4:00 p.m.	<b>SESSION III: Stack Monitoring</b>   Session Chair: Christopher Celis (CCHEN)
1:50 p.m.	STAX   Judah Friese   PNNL
2:15 p.m.	Update on the STAX data viewing software   Mattias Auer   ISTI
2:40 p.m.	Interacting with STAX – Data access and processing   Mihaela Rizescu   ISTI
3:05 p.m.	<i>Workshop Networking Coffee Break</i>
3:35 p.m.	Stack Monitoring Q&A   Ted Bowyer   PNNL
4:00 p.m. – 4:25 p.m.	<b>SESSION IV: Production</b>   Session Chair: Judah Friese (PNNL)
4:00 p.m.	NNSA Support to Mo-99 Production   Max Postman   NA-23   Virtual
4:25 p.m.	<b>Woster Award</b>   Session Chair: Ted Bowyer (PNNL)
4:40 p.m.	Session Concludes
7:00 p.m.	<b>Offsite Dinner</b>   Divertimento Chileno Hosted by CTBTO



# InterContinental Hotel | Santiago, Chile | December 4-7, 2023

Thursday, December 07 | Day 4

TIME	TITLE   SPEAKER   ORGANIZATION
<b>9:00 a.m. – 11:30 a.m.</b>	<b>SESSION V: Production, <i>cont.</i></b>   Session Chair: Judah Friese (PNNL)
9:00 a.m.	Curium Briefing on Mo-99 & Xe-133 Production   Roy Brown   Curium
9:25 a.m.	Full conversion of IRE Mo-99 production process to LEU : Impact on radio-xenon emissions   Frédéric Brabant   IRE
9:50 a.m.	Project of a new Fission Radioisotope Production Plant in Argentina and the planned noble gas emission mitigation system   Daniel Cestau   CNEA
10:15 a.m.	IAEA Activities in support of Mo-99 Production with LEU   John Dewes   IAEA
10:35 a.m.	<i>Workshop Networking Coffee Break</i>
11:05 a.m.	Environmental radiation monitoring on the territory and vicinity of the National Centre for Nuclear Research, Poland   Grzegorz Krzysztozek & Jakub Oško   NCBJ
<b>11:30 a.m. – 3:30 p.m.</b>	<b>SESSION VI: ATM &amp; Events</b>   Session Chair: Christian Maurer (GeoSphere Austria)
11:30 a.m.	Using a Monte Carlo Approach to Determine the Radioxenon Probability Density Function at an IMS Station for Background Estimation   Yuichi Kijima   CTBTO   Virtual
11:50 a.m.	Investigation of the joint influences of background RN sources and topography on plume characteristics at monitoring sites using the Weather Research and Forecasting model with inline chemistry (WRF-Chem)   Alex Jonko   LLNL
12:15 p.m.	Top-down estimates of daily global emissions of anthropogenic radioxenon during 2013-2022   Don Lucas   LLNL
12:35 p.m.	<i>Working Lunch</i>
1:45 p.m.	A Software Tool for Exploring Scientific Methods to Estimate the Radioxenon Background with more Confidence   Robin Schoemaker   CTBTO
2:10 p.m.	The Swedish Noble Gas Array – experience and future   Elmgren   FOI
2:35 p.m.	Updating Algorithms of Isotopic Activity Ratios and the associated Thresholds for screening CTBT-relevant Nuclear Events   Boxue Liu   CTBTO
3:00 p.m.	<i>Workshop Networking Coffee Break</i>
<b>3:30 p.m. – 4:15 p.m.</b>	<b>CONCLUSION &amp; SUMMARY</b>   Session Chair: Michael Foxe (PNNL)
3:30 p.m.	WOSMIP IX Summary   Michael Foxe   PNNL
4:00 p.m.	The Wozzie   Ted Bowyer   PNNL
4:15 p.m.	Conference Concludes