FINAL Program

MARC XIII

Thirteenth International Conference on
Methods and Applications of
Radioanalytical Chemistry
March 23-28, 2025

A Class I Topical Conference
sponsored by the
American Nuclear Society

Final version: March 9, 2025

www.marcconference.org

MARC CONFERENCE XIII
METHODS AND APPLICATIONS OF RADIOANALYTICAL CHEMISTRY
KAILUA-KONA, HAWAII

AMERICAN NUCLEAR SOCIETY
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American Nuclear Society

The 13th International Conference on Methods and Applications of Radioanalytical Chemistry is a Class I Topical Meeting sponsored by the American Nuclear Society (ANS) and its Isotopes and Radiation Division (IRD). We wish to express our thanks to Paula Cappelletti, ANS Director of Meetings and Programs and Chief Operating Officer, for her leadership and assistance with ensuring the success of MARC XIII, and the ANS National Program Committee for their support and guidance to the MARC XIII leadership team.

MARC SPONSORS

The Organizing Committee of MARC and in particular the Publicity Committee for MARC XIII would also like to recognize the contributions of supporters who help provide the high-quality events enjoyed by the attendees and guests. Their contributions support the scientific quality of our meeting, and we are glad to have their participation on every level.

A special thanks goes out to Mirion Technologies Canberra for their long-time premier sponsorship of the conference and their support of the Luau on Monday night for MARC XIII. We also appreciate their support for providing a workshop on gamma spectrometry tools at MARC XIII.

Our special thanks also to IsotopX as a premier sponsor for the conference and their support of the Farewell Dinner on Thursday night. We also appreciate their support for providing a workshop on isotope mass spectrometry at MARC XIII.

We give special thanks to ORTEC for their long term and high level of support for MARC and for sponsoring the sponsoring the Hevesy Award event.

We want to also acknowledge Nu Instruments. Thank you for your premier level of support and sponsorship of MARC XIII.

Finally, we would like to warmly acknowledge the substantial support of ScientaEnvinet, Thermo Fisher and Eckert & Ziegler for MARC XIII.

The Organizing Committee has been excited and thankful for the new Tuesday evening event to introduce our student attendees to the National Laboratories, with support from Ohio State University, Georgia Institute of Technology and the University of Texas at Austin.

A special thanks to George Lasche for continued technical support of the conference by providing popular Sunday workshops on advanced gamma spectrometry.

Finally, we would like to express our appreciation and acknowledge Crazy Shirts for use of their logo as part of the MARC XIII conference. We also warmly acknowledge the Journal of Radioanalytical and Nuclear Chemistry (JRNC) and publisher Akadémiai Kiadó for their long-time support of the MARC conference for publication of select papers presented at the conference and also for awarding the Hevesy Medal Award at each MARC Conference since 2000.

Please make sure to thank our sponsors when you see them at MARC.

Harry Miley, Jeremy Inglis, and Bruce Pierson
Publicity Committee, MARC XIII

CONFERENCE INFORMATION

Registration

Registration hours in the Ballroom Area of the Courtyard King Kamehameha's Kona Beach Hotel:

Sunday, March 23: 8:00 – 3:00
Monday, March 24: 7:30 – 3:00
Tuesday, March 25 – Thursday, March 27: 8:00 – 3:00
Friday, March 28: 8:00 – 12:00

Meeting Rooms

All sessions will be held in the Courtyard King Kamehameha's Kona Beach Hotel. There will be a short oral session on Sunday afternoon to award the Hevesy Medal. The oral presentations at the conference will be conducted up to five parallel oral sessions held in the Ballrooms 1 – 4, the Paddler's Room, and the Honu Event Space. Poster sessions will be held on Monday, Tuesday, Wednesday, and Thursday afternoons in the Herb Kane Foyer Area. The posters will be divided at the conference according to topic area by day but will be assigned in their LOG number order to make it easier for attendees to find posters of interest.

Oral Sessions

All papers, unless otherwise noted, will be allocated 20 minutes for presentation including questions. These time limits will be strictly enforced. Both PowerPoint and PDF files presentations will be supported. Instructions for presenters at MARC have been provided and must be followed. Speakers must check in at the Presenters Desk regarding their presentations as early as possible prior to the session (preferably the day before – its Hawaii so let's keep stress levels low). Any special needs should be discussed well in advance of the session. Presenters with the help of the Presentation Desk will check their presentation on the conference computers to make sure all compatibility issues are tested prior to the actual presentation.

All presentations are collected by the Program Chair, and copies are not provided to anyone. Please see the note below that we are using Drop-Box, with email backup, just like we did at MARC 2022. We will be in Hawaii and internet will be slow. Plan on it! Please keep your presentations file size to what you would be able to e-mail. Make any special requests and transfers well in advance because once we are in Kona, everything will take more time.

No presenter will be allowed to use their own computer or use a USB or other portable drive to attach to any MARC computer. This will be strictly enforced. Please discuss special need requests with the Program Chair well ahead of time.

INSTRUCTIONS for Uploads FOR MARC XIII----All oral presentations must be provided to the Program Chair at least one day prior to the session and we will not use USB drives or CD's. Instructions are being provided to presenters with options which include e-mail and a Drop-Box file request from the Program Chair -we will explore other options as needed. Dropbox worked very well at MARC in 2022 and for collection of the abstracts. Presenters must check-in with the Presenter Desk to verify that their presentation has been received and is working properly the day before the presentation is to be given. Suggested naming conventions, including identifying if an updated file is uploaded, have been provided and we are more than happy to assist with any questions by the presenters. The Presenter Desk is located in the Foyer near the main Keauhou convention center. Presentations scheduled for Monday should be provided to the Program Chair and checked on Sunday between 1:00 – 3:00 if possible. Contact Sam Glover (sam.glover@uc.edu) if you have questions or need to email it.

Presentation upload link for https://www.dropbox.com/request/vAMDWjQcSefcNoX55ycb

Poster Sessions

There will be four poster sessions held on Monday and Tuesday mornings and on Wednesday and Thursday afternoons in the Herb Kane Foyer area. Put up and tear down times are as follows:

Poster session A. 9:45 am to 11:30 am. Put up posters Monday morning, 7:00 – 9:00. Tear down posters Monday after 5:00.
Poster session B: 9:45 am to 11:30 am. Put up posters Tuesday morning, 7:00 – 9:00. Tear down posters Tuesday after 5:00.
Poster session C. 3:30 pm to 5 pm. Put up posters Wednesday morning, 7:00 – 12:00. Tear down posters Wednesday after 5:30.
Poster session D. 3:30 pm to 5 pm. Put up posters Thursday morning, 7:00 – 12:00. Tear down posters Thursday after 5:30.

Posters left in the area that were not collected by 7:00 am the following morning will be pulled by the conference organizers. These posters will be **discarded** if not collected by Friday afternoon. Velcro micro dots will be provided by the conference for the hanging of posters. Posters boards are 4 ft tall by 8 ft wide and the conference will provide Velcro micro-dots to attach them to the boards

JRNC Manuscripts and Manuscript Review

Continuing the policy of previous MARC conferences, selected papers presented at the conference will be published as part of the MARC Conference special publication within the serial volumes of the Journal of Radioanalytical and Nuclear Chemistry. Papers presented in either the oral or poster sessions are both eligible to be included, and it is the author's choice if they choose to submit a paper. We strongly encourage everyone who submits an abstract to consider writing up a high-quality manuscript for publication. Full details of the process have been communicated to presenters. It is a requirement that the paper must have been presented at the conference, represent unpublished original research within the scope of the JRNC, and be provided to the publication team prior to the completion of the conference. The JRNC electronic submission system will be used for all aspects of the publication process (as related to the publication in the JRNC, not to be confused with the submission of the abstract for presentation at the conference). The review process follows standard JRNC procedures, and JRNC has final decision-making on all publication decisions. Your assistance in responding to the abstract data entry form if you expect to submit a manuscript for publication based on the materials presented at MARC is greatly appreciated.

While the MARC conference includes education and training topics, those papers are not eligible to be published as part of the Special Issue of Select Papers from MARC XIII in accordance with JRNC policy. Please contact Sam Glover with any questions regarding eligibility.

All papers will be peer-reviewed in accordance with journal policy. Papers submitted for publication must be original works of strong technical merit. To facilitate rapid publication of the proceedings, any presenter submitting a paper for publication is obligated to peer-review two conference papers per paper submitted, if requested. Information has been provided regarding the uploading of the papers to the JRNC for the MARC XIII issues.

There will be an Author's Desk in the registration area where assistance with the paper publication process will be available. All reviews will be conducted via the JRNC online system and review assignments will be made upon completion of the conference. It is critical that papers are provided in the JRNC format and publication quality with very few corrections necessary to maintain a timely review process. Please see the website for additional information. Session Chairs are expected to assist with assigning reviewers to papers from their sessions. Please be prepared to review papers by the deadline assigned, usually 30 days, to ensure we meet publication deadlines.

Sponsored Social Events (Final Times for Each Event at Conference)

All registrants and paid guests are encouraged to attend the organized evening social events. The registration fee for the conference includes all sponsored events. Guests of attendees may purchase individual tickets for the Luau and/or the Farewell Reception as availability allows. All conference attendees and their guests are invited to the Sunday afternoon Hevesy Medal Award Ceremony and short reception immediately following the ceremony. These are (exact times to be announced at the conference):

Sunday ~5:30 - 6:30 pm: Welcome Reception in Honor of Hevesy Medal winner, Dr. Steve Biegalski, on the grounds of the hotel. The reception will be held immediately following Dr. Biegalski's presentation and all conference attendees are welcome to attend.

Monday thru Friday 7:00 - 8:00 am: Pastries, fruit, and beverages will be provided for attendees each morning.

Monday evening: A private conference Luau Dinner on the grounds of the hotel.

Tuesday evening ~5:00 – 6:30 pm: Special student only event. Additional information will be provided by e-mail and as a flyer available at the registration desk.

> Have you ever wondered about careers at the U.S. Department of Energy's National Laboratories? Current undergraduate, graduate and postdoctoral students are welcome to attend the "Careers at DOE National Laboratories" social. Scientists and engineers with hundreds of years of collective experience in the lab system are here to answer your questions as well as provide guidance on everything from how to find the right lab for you, find job openings, how to write applications that will get noticed, and tell tales about the unexpected twists and turns their careers have taken. Small group interactions will be facilitated in leadership flash mentoring to encourage as much interaction as possible. Students and post-docs are welcome to join for drinks and light snacks.

Tuesday evening: 6:00 – 7:00: Mirion Technologies Inc. reception, Herb Kane area

Wednesday evening: 6:00 – 8:00: Mirion Technologies Inc. reception, Herb Kane area

Thursday evening: Farewell Reception on the grounds of the hotel.

Guests may purchase a ticket for the Welcome Reception, Luau or the Farewell Reception at the registration desk if they have pre-registered attendance with the Conference Secretary. The availability of guest packages will be determined as the conference numbers are fully evaluated for each event.

Guest Program

There is no separate, formal guest program but there is an activities desk at the hotel where trips to Hawai'i Volcanoes National Park, tours of the island, fishing and diving trips and other outings can be scheduled. The Hotel Concierge is available to answer questions regarding activities or assist in booking activities on property or off property excursions.

Guests may purchase a ticket for the Welcome Reception, Luau or the Farewell Reception at the registration desk if they have pre-registered attendance with the Conference Secretary. The availability of guest packages will be determined as the conference numbers are fully evaluated for each event.

Rules of Behavior

The MARC conference as an ANS sponsored event requires that all attendees abide by the ANS Respectful Behavior Policy which is available at https://www.ans.org/about/rbp/

INTRODUCTION AND WELCOME

Aloha! Welcome to the Thirteenth International Conference on Methods and Applications of Radioanalytical Chemistry (MARC XIII). The conference organizers have put together a scientific program that we are confident you will enjoy and find professionally stimulating. We are glad to see so many our colleagues return for MARC XIII. To our first-time attendees, thank you for choosing MARC to present your work! The number of high-quality papers submitted illustrates the international prominence of MARC as a venue to highlight important work in the field of radioanalytical chemistry. For the many participants attending for the first time, we hope you enjoy both the scientific exchange and social activities and that you will take advantage of the relaxed and informal atmosphere to interact with colleagues from around the world. We are very glad to return to the **Courtyard King Kamehameha's Kona Beach Hotel** where we held the first eight MARC conferences, and MARC XII in 2022.

The organizers, in collaboration with the Journal of Radioanalytical and Nuclear Chemistry Board of the Hevesy Award, welcome the decision to present the Year 2025 Hevesy Award for outstanding achievement in radioanalytical and nuclear chemistry at the opening ceremony of MARC XIII. We extend our congratulations to Dr. Steven Biegalski, from the Georgia Institute of Technology, who was selected as the 2025 Hevesy Award winner.

We would like to thank all members of the Organizing Committee who have worked to make the conference a success and the Session Organizers who have organized an outstanding scientific program.

No Final Program is ever 'final' until the conference is over. This program was finalized on March 9th, 2025 so any changes will be posted at the conference registration desk. Finally, it is hard to believe the MARC I was 42 years ago at the King Kamehameha's Kona Beach Hotel. The MARC founders would be thrilled to see the conference is as healthy as ever, and on behalf of the American Nuclear Society, we are excited to catch up with each and every one of you at MARC XIII.

Mahalo,

Dr. Steve LaMont, Conference Chair
Dr. Sam Glover, Technical Program Chair

SPECIAL THANK YOU

No conference is successful without a dedicated group of organizers to plan and execute every detail. We would like to call special attention to our Conference Executive, Danielle Roybal, and Conference Secretary, Samantha Cordova, who gave countless weekend and evening hours to keep MARC XIII on the rails. They were always ready to help with every aspect of MARC and fielded countless emails and phone calls to attendees, providing expert guidance throughout the planning and registration process. Thank you, Danielle and Samantha – we truly appreciate your hard work and dedication to the success of MARC XIII!

	Morning	Afternoon	
Sunday (location announced at conference)	Snakedance Scientific: Gamma Ray Spectrometry Part i (9-11)	Snakedance Scientific: Gamma Ray Spectrometry Part ii (1-3)	
Sunday workshop (location announced at conference)		IsotopX: Introduction to Mass Spectrometry	
Sunday Workshop (location announced at conference)		Mirion Canberra: Topics in *radiation detection, measurement, and nuclear instrumentation.*	
Sunday Hevesy Award Ceremony (Combined ballooms)	(Conference registration opens at 8 am and closes at 3 pm, located outside of the ballroom area)		Hevesy Medal Award Ceremony and Reception (4:30-6:30) on Hotel Grounds

See the website for specific information about the workshop (https://www.marcconference.org/workshops/)

<table>
<tr><th colspan="4">Monday</th></tr>
<tr><td></td><td>Morning</td><td>Afternoon</td><td></td></tr>
<tr><td>Ballroom 1</td><td rowspan="4">Introductions and Plenary sessions in the combined ballrooms (single session)

Introductions
8:15-9 Plenary: Dr. Paul McGinnity
9-9:45 Plenary: Dr. Zsolt Révay
9:45-11:30 Coffee Break and Poster session A in the Designated poster area</td><td>B: Intentional Nuclear Forensics in Ballrooms 1 and 2</td><td rowspan="4">Poster Session A
9:45-11:30 Featuring
• Track 2: Nuclear Security, Nonproliferation and Forensics
• Track 3: Environmental Radioactivity and Dosimetry

Evening Event: Private Luau on Hotel Grounds</td></tr>
<tr><td>Ballroom 2</td><td rowspan="2">A: Ultra-sensitive Mass Spectrometric and Radiometric Methods for Environmental and Space Applications in Ballrooms 3</td></tr>
<tr><td>Ballroom 3</td></tr>
<tr><td>Ballroom 4</td><td>C: Advances in the Nuclear Fuel Cycle – Radio and Analytical Chemistry Supporting Re-Processing, Characterization, and Waste Form Development (Part 1 of 2) in Ballroom 4</td></tr>
<tr><td>Paddler's room</td><td></td><td>D: Nuclear and Radiological Reference Materials</td><td></td></tr>
<tr><th colspan="4">Tuesday</th></tr>
<tr><td></td><td>Morning</td><td>Afternoon</td><td></td></tr>
<tr><td>Ballroom 1</td><td rowspan="4">Introductions and Plenary sessions in the combined ballrooms (single session)

Introductions
8:15-9 Plenary: Dr. Amy Gaffney
9-9:45 Plenary: Dr. Georg Steinhauser
9:45-11:30 Coffee Break and Poster session B in the Designated poster area)</td><td>F: Radiochronometry for Nuclear Forensics and Nonproliferation Applications in Ballrooms 1 and 2</td><td rowspan="4">Poster Session B
9:45-11:30 Featuring
• Track 2: Nuclear Security, Nonproliferation and Forensics
• Track 3: Environmental Radioactivity and Dosimetry

{Student ONLY Event: Mixer 5:00-6:30 PM on Hotel Grounds}
No planned evening conference event</td></tr>
<tr><td>Ballroom 2</td><td rowspan="2">E: Application of Nuclear Techniques to Treaty Monitoring in Ballroom 3</td></tr>
<tr><td>Ballroom 3</td></tr>
<tr><td>Ballroom 4</td><td>G: Advances in the Nuclear Fuel Cycle – Radio and Analytical Chemistry Supporting Re-Processing, Characterization, and Waste Form Development (Part 2 of 2) in Ballroom 4</td></tr>
<tr><td>Paddler's Room</td><td></td><td>H: Separation Chemistry and Target Preparation for Nuclear Chemistry Experiments</td><td></td></tr>
<tr><td>Honu's Event Room</td><td></td><td>Session I: Emerging Radioanalytical Techniques, Advances and Applications in the Production of Essential Radionuclides
{After coffee break}
Session J: Development and Application of Neutron, X-ray, and In Vivo Counting Techniques to Quantify Stable Elements and Radioisotopes in Human Body</td><td></td></tr>
</table>

Wednesday			
	Morning	Afternoon	
Ballroom 1	K: Actinide Mass Spectrometry for Treaty Monitoring and Nuclear Forensics	K (continued)	Poster Session C 3:30-5 Featuring • Track 4: Activation Analysis, Particle Beam and Imaging • Track 5: Advanced Analytical Methods for Fuel Cycle Radiochemistry No planned evening event
Ballroom 2	L: Advances in Microscopy, Imaging, and Spatially Resolved Methods for Nuclear Security Applications	L (continued)	
Ballroom 3	M: Neutron Activation Analysis in Honor of Amares Chatt	P: Development and Application of Nuclear Analytical Methods with Neutron Beam Technologies	
Ballroom 4	N: Advances in Gamma Spectrometry Methods, Instrumentation, and Software in in the Laboratory and in the Field	Q: Emerging Technologies in Nuclear Nonproliferation	
Paddler's room	O: Radiochemistry of Molten Salt Reactors: Recent Progress, Methods and Applications	O (continued)	
Thursday			
	Morning	Afternoon	
Ballroom 1	R: Environmental Radioactivity and Dosimetry	R (continued)	Poster Session D 3:30-5 Featuring • Track 2: Nuclear Security, Nonproliferation and Forensics • Track 6: Nuclear Science and Education Evening Event: Farewell Reception on hotel grounds
Ballroom 2	S: Nuclear Data for Nuclear Security	S (continued)	
Ballroom 3	T: Bridging the Gap: Integrated Approaches to Nuclear Forensics R&D	T (continued)	
Ballroom 4	U: International Collaborations, Advancements in Radiochemistry Education, and Enhancements in Laboratory Expertise	U (continued)	
Paddler's room	V: Analytical and Electrochemical Technology Development for Pyroprocessing	V (continued)	

Friday	
	Morning
Ballroom 1	W: Advances in the Chemistry and Measurement of Fission and Activation Products for National Security, Nonproliferation and Forensics
Ballroom 2	X: Measurements of low-level radionuclides in the environment: Advances in chemistry, detection systems, characterization, and applications
Ballroom 3	Y: Neutron Imaging Technologies and Applications
Ballroom 4	Z: Advances in Actinide Analytical and Radionuclear Chemistry

Program

Sunday, March 23, 2025

8:00-3:00 p.m. **Conference Registration**

Registration will be available throughout the conference. Please be patient and the more you can do before the conference the better everything will flow.

Assignment of rooms for the workshops will occur at the conference, so please see the Registration Desk where it will be posted. All conference attendees are welcome to attend the workshops as space permits, but only those who pre-registered will be guaranteed a place. Please review the conference website for additional details regarding the workshops at the following link or the QR code to the right:
(https://www.marcconference.org/workshops/)

Please see the website or conference desk for current information.

9:00-11:00 a.m. **Morning workshops** (information available at conference and online)
1:00-3:00 p.m. **Afternoon workshops** (information available at conference and online)
4:00-6:30 p.m. **Hevesy Medal Award Ceremony and Reception (**grounds of the hotel)

A) 4:00 **Welcome and Introduction**, Dr. Steve LaMont, Conference Chair and Dr. Harry Miley, Publicity Chair. Combined Ballroom.

B**) Introduction, presentation of the Hevesy Medal Award**: Dr. Zsolt Révay, Editor-in-Chief - Journal of Radioanalytical and Nuclear Chemistry, Chair of JRNC Board of the Hevesy Award and Chair of 2025 Hevesy Award Medal Selection Panel: Dr. Steven Biegalski, of The Georgia Institute of Technology has been selected to receive the 2025 Hevesy Medal Award in recognition of his significant contributions to nuclear analytical chemistry by developing comprehensive methods for analyzing radioxenon signatures and creating isotopically pure radioxenon samples, supporting global nuclear monitoring efforts and nuclear accident response. The Hevesy Medal Award Presentation by Dr. Biegalski will be delivered as part of this opening Ceremony.

C) 5:30-6:30 PM Reception on the grounds of the hotel, information to be provided at the conference.

Hevesy Medal Award Presentation

ADVANCES IN RADIOXENON MONITORING TECHNOLOGY. Steven Biegalski, Georgia Institute of Technology, USA.

Recent advancements in radioxenon technologies have significantly enhanced nuclear monitoring capabilities through several interconnected research areas. The development of methods for producing isotopically pure radioxenon has enabled precise calibration of β-γ coincidence detection systems utilized within the International Monitoring System of the Comprehensive Nuclear-Test-Ban Treaty. This foundational work facilitated comprehensive characterization of radioxenon signatures for nuclear source identification, including quantification of subsurface mass transport effects on signature evolution and identification of non-traditional isotopic ratios for source attribution. Implementation of these detection and characterization techniques during nuclear emergency response scenarios has demonstrated their practical value, particularly in rapid assessment of reactor core damage states. This research has extended applications to environmental transport studies, establishing new capabilities across nuclear monitoring, source term characterization, and emergency response domains. The author dedicates the George Hevesy Medal Award 2025 to his students, wife, and colleagues who advanced the state-of-the art in radioxenon monitoring technologies.

ORTEC IS THE OFFICIAL SPONSOR OF THE HEVESY MEDAL AWARD PRESENTATION AND RECEPTION

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Please be sure to stop and see team ORTEC at the MARC conference and thank them for their support.

Plenary Presentations

IAEA VERIFICATION OF JAPAN'S MONITORING OF RADIOACTIVE RELEASES FROM THE FUKUSHIMA DAICHI NUCLEAR POWER STATION. Paul McGinnity, IAEA, MEL.

Since shortly after the accident at Fukushima Daichi Nuclear Power Station (FDNPS) in March 2011, scientific organizations in Japan have undertaken intensive monitoring to assess the radiological consequences of the accident, including in the marine environment. This monitoring provides data for assessing the safety of radiation levels and the public's exposure to radiation. It also addresses the continuing concern of the public about FDNPS in Japan and internationally. But how can we be sure that the resulting data reflects the actual levels in the various sample media measured?

More recently, Japan began controlled discharges of ALPS (Advanced Liquid Processing System) treated water currently stored in tanks at FDNPS into the Pacific Ocean. A radiological characterization of the treated water to be discharged was required. Source monitoring of each batched discharge to ensure compliance with regulatory levels and targeted marine environmental monitoring to underpin Japan's radiological environmental impact assessment (REIA) for ensuring the protection of people and the environment are being undertaken. Again, how can we be sure that the measurement results are accurate?

To address this, since 2014 the IAEA has been verifying Japan's monitoring data through interlaboratory comparisons (ILCs) and proficiency tests (PTs). The ILCs are based on a broad range of relevant radionuclides in both ALPS treated water samples from the tanks at FDNPS and in environmental media including seawater, sediment, fish and seaweed from locations around FDNPS. These samples are collected by Japanese personnel with IAEA observation and split to provide identical samples to participating laboratories in Japan, the IAEA and, frequently, internationally to expert laboratories from the network of Analytical Laboratories for the Measurement of Environmental Radioactivity (ALMERA). The PTs are based on seawater samples spiked with radionuclides relevant to the accident at FDNPS. These activities are intended to test the quality of Japan's monitoring data and the comparability of the results. The results so far demonstrate a continued high level of competence on the part of participating Japanese laboratories and the reliability of the published monitoring data.

K0 APPROACH IN PROMPT GAMMA ACTIVATION ANALYSIS

Zsolt Révay, Technical University Munich, Heinz Maier-Leibnitz Center (MLZ), 85747 Garching, Germany

Prompt Gamma Activation Analysis (PGAA) began as the little brother of Neutron Activation Analysis (NAA). Due to the complexity of the gamma spectra, only a couple of laboratories used it for the determination of a few elements based on selected peaks. However, thanks to its strong linearity and reliability, it was even used for SRM certification at NIST. In the 1990s, the high-resolution MCAs and the easy access to computers made possible the complete evaluation of prompt gamma spectra. Our ambition at the Budapest Neutron Center was to fully exploit the potentials of PGAA and to make it a complete analytical method using the k0 approach known from NAA, i.e. using precise calibration and lab-independent spectroscopy data. In a large measurement campaign, the energies and cross sections of the characteristic lines were determined by irradiating pure elements and stoichiometric compounds. In parallel, the analytical method was also developed: the ProSpeRo program fits the masses to the peak groups of the elements, handles the interferences, background and self-attenuations, and it also determines the detection limits. The method has been used successfully in Budapest and in Garching, it was also introduced in a few other laboratories.

The most important applications include monitoring hydrogenation in a catalytic reactor, the non-destructive investigation of archeological artefacts for provenance studies of amphorae, or paleoclimate investigations on limescales from Roman aqueducts, characterization of nuclear material inside closed container, analyses of air filters, meteorites, deep sea vents, smart-phone boards etc. in tens of thousands of analyses proving the maturity of the PGAA technique.

In addition to analysis, this (n,γ) data can and have also been used for the derivation of neutron capture cross sections, shielding calculations, etc. Several data libraries have appeared in parallel, such as EGAF, the lists at IAEA Nuclear Data Services, but their sources are the Budapest data. After earlier minor improvements, the data library is currently being updated using new systematic measurements and relying on the new high-accuracy nuclear data.

FOR THE AGES: RADIOCHRONOMETRY SIGNATURES OF URANIUM MATERIALS. Amy Gaffney, Lawrence Livermore National Laboratory, USA.

Radiochronometry is a powerful analytical tool that relies upon the predictable nature of radioactive decay to understand the history of nuclear materials and production processes. This method has a wide range of applications in areas including nuclear forensics and safeguards. Analytical advancements over the past decade have focused on developing fit for purpose reference materials and robust mass spectrometry analysis methods to support a mature capability for accurate and precise measurement of parent-progeny isotope ratios. Interpreting measured isotope ratios as a predictive signature of a material's processing history and timelines requires making a fundamental assumption that the material was completely purified of decay products at the time it was processed.

Our current work focuses on evaluating this assumption by performing ground-truth radiochronometry analyses on a broad range of fuel cycle materials with a known and well-constrained provenance. For some materials, we are able to validate the assumption that the material was completely purified of decay progeny at the time of production, and therefore that the radiochronometric age of the material represents the time of material production. In cases where this assumption does not hold true, we are developing analytical approaches to independently evaluate this assumption, and meaningfully interpret analytical results in the face of invalid assumptions. Prepared by LLNL under Contract DE-AC52-07NA27344, LLNL-ABS-20001518

THE WORLD'S FIRST REACTOR-PRODUCED PLUTONIUM AND THE UNTOLD STORY OF CAPTAIN JANE. Georg Steinhauser, TU Wien, Austria, and Los Alamos National Laboratory, USA, and colleagues.

A remarkable story about a remarkable material. The challenges in the production of plutonium in the course of the Manhattan Project can hardly be grasped due to the sheer number and complexity of the tasks. At the time when construction of the B Reactor at Hanford had already begun, there were no macroscopic quantities of plutonium available to carry out crucial scientific work. The first macroscopic amounts of plutonium were produced in the now almost forgotten X-10 reactor at the Clinton Engineer Works, Oak Ridge, TN, USA. This material was instrumental in understanding the nuclear and chemical properties of plutonium to enable large-scale production of weapons-grade plutonium the B Reactor. Crucial investigations and decisive discoveries about the properties of plutonium were made at the Los Alamos Laboratory, NM, which received the first batch from Oak Ridge in April 1944. Today, however, the whereabouts of this historically significant material, with a few notable exceptions, remain largely unknown.

In September 2021, a number of historical artifacts were discovered in a former underground waste disposal pit on the former site of Technical Area 21 (TA-21) at Los Alamos. Two of the artifacts (a stack of newspaper scraps about the size of a postage stamp and a filter paper) were found to be contaminated with plutonium. The isotopic signature of this contamination, determined by gamma spectrometry and thermal ionization mass spectrometry, showed extremely low-burn plutonium, consistent with X-10 plutonium. After a painstaking search for the date and background of the contamination, it is now possible to conclude that the material was not only X-10 plutonium, but probably even the first batch of plutonium to arrive at the Los Alamos laboratory in the spring of 1944. The contaminated artifacts thereby also represent the first known environmental release of plutonium, 14 months prior to the Trinity Test in New Mexico.

Dr Amares Chatt

28 DECEMBER 1942 – 20 OCTOBER, 2024

Prof. Chatt was a Professor at Dalhousie University. He was the president of the International Committee on Activation Analysis (ICAA). A giant in the field of nuclear and radiochemistry, Prof. Chatt supervised and trained students and young scientists from different countries and visited many laboratories over the world. He was respected as an international scientific ambassador on nuclear analytical chemistry by all colleagues in the international community. He was humorous, energetic, optimistic, helpful and indefatigable.

In his last two weeks, he was visiting laboratories in China, delivered three scientific lectures, met with staff, young scientists, and students. His love and joy were felt by all who came in contact with him.

Chatt was a loving husband to Niecy Jacobson Chatt, widowed early in life, and devoted father to Mira Lira and Jilly Milly. He was an intrepid and 4 Million Mile Super Elite world traveler, a consummate joker, generous to a tee, not to mention a pioneer in his field of neutron activation analysis. Chatt lived a successful life to the fullest.

Begin Monday Program

The organizers of MARC appreciate the sponsorship by ScientaEnvinet for the Monday Morning morning coffee break and the afternoon coffee break.

MONDAY PLENARY SESSION FOLLOWED BY POSTER SESSION A

MONDAY MORNING PROGRAM IN COMBINED BALLROOM AND POSTER AREA

ORGANIZED BY STEVE LAMONT AND SAM GLOVER

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:15 (45 min)	1	Plenary: **IAEA VERIFICATION OF JAPAN'S MONITORING OF RADIOACTIVE RELEASES FROM THE FUKUSHIMA DAICHI NUCLEAR POWER STATION**. Paul McGinnity, IAEA, MEL.
9:00 (45 min)	2	Plenary: **K0 APPROACH IN PROMPT GAMMA ACTIVATION ANALYSIS**. Zsolt Révay, Technical University Munich, Heinz Maier-Leibnitz Center (MLZ), 85747 Garching, Germany
9:45 (30 min)		**Coffee break in Poster Area**
9:45-11:30	5	**Poster Session A** (~60 posters) emphasizing • Track 2: Nuclear Security, Nonproliferation and Forensics • Track 3: Environmental Radioactivity and Dosimetry
1130-1	6	**Lunch break**

SESSION A: ULTRA-SENSITIVE MASS SPECTROMETRIC AND RADIOMETRIC METHODS FOR ENVIRONMENTAL AND SPACE APPLICATIONS

MONDAY AFTERNOON IN BALLROOM 3

ORGANIZED BY PAVEL POVINEC, UNIVERSITY OF BRATISLAVA, SLOVAKIA; AND BENJAMIN MANARD, OAK RIDGE NATIONAL LABORATORY, USA

TIME	order	Presentation Title and Speaker
1:00 (30 min)	1	**Log 219. ULTRA-SENSITIVE RADIONUCLIDE DETECTION WITH ION-LASER INTERACTION MASS SPECTROMETRY.** Martschini, M.(1,P); Merchel, S.(1); Hain, K.(1); Frost, L.(2); Gaertner, A.(3); Marchhart, O.(1); Steier, P.(1); Wieser, A.(1,4); Wiederin, A.(1); Winkler, S.(4); Golser, R.(1). (1) Unviersity of Vienna, Austria. (2) Juelicher Entsorgungsgesellschaft fuer Nuklearanlagen mbH, Germany. (3) Senckenberg Natural History Collections Dresden, Germany. (4) Helmholtz-Zentrum Dresden-Rossendorf, Germany. (P) Presenting Author.
1:30	2	**Log 331. FINDING THE NEEDLE IN THE HAYSTACK: PINPOINT AND CHARACTERISING RADIOACTIVE NANO- AND MICROPARTICLES IN THE ENVIROMENT VIA ADVANVED SINGLE PARTICLE TECHNIQUES.** Clases, D. (1, P); Lockwood, T. (8); Elinkmann, M. (1); Paton L. (1); Schlatt L. (2); Simic, M. (3, 4, 5, 6); Neuper, C. (3, 4); Hill, C. (3,7); Gonzalez de Vega, R. (1); Bohleber, P. (9); (1) Institute of Chemistry, University of Graz, Austria, (2) Nu Instruments, Wrexham, UK, (3) Brave Analytics GmbH, Austria, (4) Gottfried Schatz Research Center, (5) Medical Physics and of Biophysics, Medical University of Graz, Austria, (6) Institute of Physics, University of Graz, Austria, (7) Graz Centre for Electron Microscopy, Graz, Austria, (8) University of Technology Sydney, Ultimo, Australia, (9) Alfred Wegner Insitute, Germany
1:50	3	**Log 572. SINGLE ATOM COUNTING OF TECHNETIUM-99 AT THE AUSTRALIAN NATIONAL UNIVERSITY.** Pavetich, S.(1,P); Adler, S.(2); Burge, P.D.(1); Fifield, L.K.(1); Froehlich, M.B.(1); Gülce, F.(2); Hain, K.(2); Martschini, M.(1); Rothery, C.N.(1) Tims, S.G.(1). (1) Department of Nuclear Physics and Accelerator Applications, The Australian National University, Australia. (2) University of Vienna, Faculty of Physics, Isotope Physics, Vienna, Austria. (P) Presenting Author.
2:10	4	**Log 381. ADVANCING DETECTION: ENHANCING SENSITIVITY FOR TRACE RADIUM MEASUREMENT IN DIVERSE MATRICES USING INNOVATIVE TOOLS.** Lariviere, D. (1) (1) Radioecology laboratory, Chemistry department, Laval Univeristy
2:30	5	**Log 299. ADVANCING TRACE-LEVEL ANALYSIS OF REDOX-SENSITIVE FISSION PRODUCTS: A NOVEL IC-ICP-MS APPROACH FOR IODINE AND SELENIUM IN ENVIRONMENTAL CONTAMINANTS.** Szlamkowicz, I.; Ballerini, G.; Carroll, A.; Anagnostopoulos, V. (P) University of Central Florida
2:50	6	**Log 343. AUTOMATED SAMPLE INTRODUCTION AND CHROMATOGRAPHIC SEPARATIONS FOR IMPROVED MASS SPECTROMETRIC DETECTION OF TARGETED ELEMENTS AT ULTRA-TRACE LEVELS.** Quarles Jr, C.D. (1, P); Horstmann, M. (2); Clases, D. (3); Karst, U. (2); Sullivan, P. (1) Elemental Scientific, Inc. (2) University of Muenster (3) University of Graz (P) Presenting Author.
3:10 – 3:30		**COFFEE BREAK**

SESSION A CONTINUES AFTER COFFEE BREAK

3:30	7	**Log 353. MOVING TOWARDS SINGLE-PARTICLE, ULTRAHIGH RESOLUTION ISOTOPE RATIO MEASUREMENTS USING A MICROPLASMA/ORBITRAP COMBINATION.** Shresthra, S.(1); Goodwin, J.V.(1); Manard, B.T.(2); Marcus, R.K. (1,P). (1) Clemson University. (2) Oak Ridge National Laboratory.
3:50	8	**Log 438. SINGLE-PARTICLE MULTI-COLLECTOR INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY FOR ANALYSIS AND CHARACTERIZATION OF ISOTOPIC RATIOS.** Szakas, S.E. (1, P), Manard, B. (1), Ticknor, B. (1), Stanberry, J. (1), Andrews, H. (1), Zirakparvar, A. (1), Darnell, M. (1), Dunlap, D. (1), Shultz-Johnson, L.R. (2), Barrett, C.A. (2), (1) Oak Ridge National Laboratory (2) Savannah River National Laboratory (P) Presenting Author
4:10	9	**Log 291. MICROEXTRACTION – INDUCTIVELY COUPLED PLASMA – MASS SPECTROMETRY FOR THE DIRECT ANALYSIS OF ENVIRONMENTAL SAMPLES.** Stanberry, J.S. (1,P); Szakas, S.E. (1); Andrews, H.B. (2); Thompson, C.V. (1); Ticknor, B.W. (1); Zirakparvar, N.A. (1); Manard, B.T. (1). (1) Chemical Sciences Division, Oak Ridge National Laboratory, USA; (2) Radioisotope Science and Technology Division, Oak Ridge National Laboratory, USA
4:30	10	**Log 338. EVALUATION OF CL-36 AND H-3 DIFFUSION IN DEEP GEOLOGICAL REPOSITORIES USING LSC AND AMS.** Baur, S. (1,P); Vockenhuber, C. (2); Christl, M. (2); Mäder U. (3); Martin, L. (4); Kiczka, M. (5); Heule, M.; Harzmann, S. (1); Mayer, S.(1). (1) Paul Scherrer Institute, Department of Radiation Safety and Security, Radioanalytics Group, Villigen PSI, Switzerland. (2) ETH Zurich, Laboratory of Ion Beam Physics, Switzerland. (3) Rock-Water Consulting, Boll, Switzerland. (4) Nagra, Wettingen, Switzerland. (5) University of Bern, Institute of Geological Sciences, Rock-Water Interaction (RWI), Switzerland. (P) Presenting Author.
4:50	11	**Log 646. RADIOPURITY STUDIES OF MATERIALS DESIGNED FOR UNDERGROUND EXPERIMENTS.** Povinec, P.P.(1, P); Benedik, L.(2); Bujdoš, M.(1); Hou, X.(3,4,5); Ješkovský, M.(1); Kaizer, J.(1); Kontuľ, I.(1); Kučera, J.(6); Larivière, D.(7); Laubenstein, M.(8); Nisi, S.(8); Pham, M.K.(9); Perrot, F.(10); Sýkora, I.(1); Terrasi, F.(11); Wang, Y.(4); Warot, G.(12); Zeman, J.(1). (1) Comenius University, Bratislava, Slovakia. (2) Jožef Stefan Institute, Ljubljana, Slovenia. (3) Technical University of Denmark, Risø Campus, Roskilde, Denmark. (4) Institute of Earth Environment of the China Academy of Sciences, Xi'an, China. (5) Lanzhou University, Lanzhou, China (present address). (6) Czech Academy of Sciences, Nuclear Physics Institute, Husinec-Řež, Czech Republic. (7) Université Laval, Quebec City, Canada. (8) Laboratori Nazionali del Gran Sasso, Istituto Nazionale Di Fisica Nucleare, Assergi, Italy; (9) International Atomic Energy Agency, Marine Environment Laboratories, Monaco, Principality of Monaco. (10) Université de Bordeaux, CNRS/IN2P3, LP2i Bordeaux, Gradignan, France. (11) University of Campania Luigi Vanvitelli, Caserta, Italy. (12) Laboratoire Souterrain de Modane, Modane, France. (P) Presenting Author.

Session finishes at 5:10 and Luau starts at 6:00

SESSION B: INTENTIONAL NUCLEAR FORENSICS

MONDAY AFTERNOON IN COMBINED BALLROOMS 1 AND 2

ORGANIZED BY NAOMI MARKS, LAWRENCE LIVERMORE NATIONAL LABORATORY, USA; AND REBECCA CHAMBERLIN, LOS ALAMOS NATIONAL LABORATORY, USA; AND DANIEL CLUFF, CANADIAN NUCLEAR LABORATORIES

TIME	order	Presentation Title and Speaker
1:00 (25 min)	1	**Log 133. COUNTERFOIL BLUE AND OTHER HOT PURSUITS: CURRENT STRATEGIES FOR NUCLEAR FORENSICS-BY-DESIGN.** Chamberlin, R.M.(1,P); Marks, N.(2); Wellons, M.(3); Shields, A.(4); Condon, N.(5); Brown, D.(6); Green, G.(3), Osborn, J.(7). (1) Los Alamos National Laboratory. (2) Lawrence Livermore National Laboratory. (3) Savannah River National Laboratory. (4) Oak Ridge National Laboratory. (5) Argonne National Laboratory. (6) Brookhaven National Laboratory. (7) Sandia NationalLaboratories. (P) Presenting Author.
1:25	2	**Log 474. POSTIRRADIATION EXAMINATION OF INTENTIONALLY TAGGED URANIUM DIOXIDE FUEL.** Ulrich, T. (1, P); Harp, J. (1); Jones, M. (1); Wilson, B. (1); Shields, A. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.
1:45	3	**Log 521. TAGGANT INVENTORY UNCERTAINTY ANALYSIS WITH CINDER FOR POST IRRADIATION EXAMINATION AT HIGH FLUX ISOTOPE REACTOR.** Salazar III, A. (1, P); Lutz, E.C.(1); Osborn, J.M.(1). (1) Sandia National Laboratories. (P) Presenting Author.
2:05	4	**Log 626. FORWARD MODELLING OF ANALYTICAL OUTCOMES FOR INTENTIONALLY TAGGED NUCLEAR FUELS.** Wellons, M. (1,P); Gamble, S. (1); Samperton, K. (1); Green, G. (1); Hoar, E. (1); Fitzgerald, C. (1); Scott, S. (1); Osborn, J. (2); Lutz, E. (2); Shields, A. (3); Wilson, B. (3); Marks, N. (4); Chamberlin, R. (5). (1) Savannah River National Laboratory. (2) Sandia National Laboratory. (3) Oak Ridge National Laboratory. (4) Lawerence Livermore National Laboratory. (5) Los Alamos National Laboratory. (P) Presenting Author.
2:25 (25 min)	5	**Log 734. USE OF ADVANCED UO2 FUEL IN INTENTIONAL FORENSICS.** Cluff, D. (1,P); Spencer, M. (1); Battersby, J. (1); Young, D. (1); Dimayuga, I (1); Totland, M. (1); 1 - Canadian Nuclear Laboratories
2:50	6	**Log 441. RECOVERY OF NI, MO, AND W ISOTOPIC TAGGANTS FROM URANIUM OXIDE FUEL PELLETS.** Rolison, J.M.(1,P); Render, J.(1); Shollenberger, Q.R.(1); Marks, N.(1); (1) Nuclear and Chemical Sciences Division, Lawrence Livermore National Laboratory, USA.
3:10 – 3:30		**COFFEE BREAK**

SESSION B CONTINUES AFTER COFFEE BREAK

3:30	7	**Log 236. RIMS ANALYSIS OF TAGGED URANIUM WITH APPLICATION TO INTENTIONAL FORENSICS.** Shulaker, D.Z.(1, P); Raiwa, M.(1); Savina, M.(1); Isselhardt, B.(1); Marks, N.(1) (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
3:50	8	**Log 430. ASSESSING A NEW CAPABILITY FOR THE ANALYSIS OF TAGGED URANIUM OXIDE PELLETS: A BENCHTOP LALI-TOF MS INSTRUMENT.** Erickson, K. (1); Schappert, M. (1, P). (1) Los Alamos National Laboratory. (P) Presenting Author.
4:10	9	**Log 571. COMPARISON OF TAGGANT FORMFACTOR IMPACT ON FUEL PELLET PROPERTIES.** Shultz-Johnson, L. (1); Koh, K. (1, P); Bowden, S. (1); Fitzgerald, C. (1); Wellons, M. (1); Barrett, C. (1); Gage, G. (1). (1) Savannah River National Laboratory.
4:30	10	**Log 735. OPTICALLY ACTIVE INVISIBLE SURFACE TAGS FOR NUCLEAR FORENSICS.** Abdel-Rahman, M.K. (1, P); Mouche, P.A. (1, P); Jamison, L. (1); Yacout, A.M.(1); Condon, N.J. (1). (1) Argonne National Laboratory
4:50	11	**Log 429. THE FUTURE LOOKS BRIGHT: WHAT WE'VE LEARNED SO FAR FROM THE INTENTIONAL FORENSICS VENTURE.** Marks, N.E.(1,P); Chamberlin, R.M (2); Shields, A.E. (3); Wellons, M (4). (1) Lawrence Livermore National Laboratory (2) Los Alamos National Laboratory. (3) Oak Ridge National Laboratory. (4) Savannah River National Laboratory. (P) Presenting Author.

Session finishes at 5:10 and Luau starts at 6:00

SESSION C: ADVANCES IN THE NUCLEAR FUEL CYCLE – RADIO AND ANALYTICAL CHEMISTRY SUPPORTING RE-PROCESSING, CHARACTERIZATION, AND WASTE FORM DEVELOPMENT (DAY 1 OF 2)

MONDAY AFTERNOON IN BALLROOM 4

ORGANIZED BY DAVID DIPRETE, SAVANNAH RIVER NATIONAL LABORATORY, USA; NATHALIE WALL, UNIVERSITY OF FLORIDA, USA; ELISE CONTE, PACIFIC NORTHWEST NATIONAL LABORATORY, USA; AND JOSEPH GIAQUINTO, OAK RIDGE NATIONAL LABORATORY, USA.

TIME	order	Presentation Title and Speaker
1:00 (30 min)	1	**Log 130. RADIOCHEMICAL METHODOLOGY USED TO CHARACTERIZE SAVANNAH RIVER SITE HEU SOLUTIONS FOR HALEU FEEDSTOCK.** DiPrete, D. (1,P); (1) SRNL. (P) Presenting Author.
1:30	2	**Log 213. SEPARATION OF U FROM SOLID SOLUTIONS OF CE AND PU DOPED URANIUM OXIDES BY CHLORIDE VOLATILITY.** Victor, J. (1,P); Czerwinski, K. (1). (1) University of Nevada, Las Vegas. Radiochemistry Program. (P) Presenting Author.
1:50	3	**Log 215. GROUP HEXAVALENT ACTINIDE SEPARATION FROM LANTHANIDES USING SODIUM BISMUTHATE CHROMATOGRAPHY.** Labb, S.A.(1,2,P); Kmak, K.N.(1); Despotopulos, J.D.(1); Kerlin, W.M.(1); Sudowe, R.(2). (1) Lawrence Livermore National Laboratory. (2) Colorado State University. (P) Presenting Author.
2:10	4	**Log 243. ASTM STANDARD PRACTICE C1845 USE AND MODIFICATION FOR RADIOCHEMICAL ASSAY OF HIGH BURNUP URANIUM FUEL.** Keever, T. J.(P); Roach, B. D.; Delashmitt, J. S.; Procop, G.; Zirakparvar, N.; Rogers, K. T.; Grant, C. B.; Hexel C.R.; Bevard, B. B; Giaquinto, J. M. Oak Ridge National Laboratory
2:30	5	**Log 267. ACTINIDE ELEMENTAL RATIOS OF SPENT NUCLEAR FUEL SAMPLES BY RESONANCE IONIZATION MASS SPECTROMETRY.** Isselhardt, B.H. (1,P); Raiwa, M. (1); Savina, M.R. (1); Roberts, A.G. (1); Shulaker, D.Z. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
2:50	6	**Log 303. DEVELOPMENT OF MACHINE LEARNING POTENTIALS TO MODEL ACID-BASE DISSOCIATION IN NITRIC ACID AND THE OSMOTIC AND ACTIVITY COEFFICIENTS.** Dinpajooh M. (1,P), LaCount M.D. (1), Muller S.E. (1), Henson N.J. (1), Mundy C.J. (1), Ritzmann A.M. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
3:10 – 3:30		**COFFEE BREAK**

SESSION C CONTINUES AFTER COFFEE BREAK

3:30	7	**Log 312. A RAPID MICROFLUIDIC NEPTUNIUM EXTRACTION USING A SUPPORTED LIQUID MEMBRANE MODULE .** Cicchetti, N. (1, 2, P); Glennon, K.J. (2); Parsons-Davis, T. (2); Shusterman, J.A. (2); Gelis, A.V. (1). (1) University of Nevada, Las Vegas (2) Lawrence Livermore National Laboratory (P) Presenting Author
3:50	8	**Log 314. ENHANCING URANIUM CHLORIDE DIGESTION AND PREPARATION FOR RELIABLE ICP-MS MEASUREMENTS OF CHLORIDE VOLATILITY PRODUCTS.** Torrie, J. Marvin (1,P); Wright, Justin (1); Rappleye, Devin (1). (1) Brigham Young University. (P) Presenting Author.
4:10	9	**Log 320. IMPACT OF ANIONS ON THE CHEMICAL ACTIVITY OF TANK WASTE APPLIED TO SUPERNATE CESIUM REMOVAL.** Robb, A.(1,2,P); Campbell, E. (1), Bachman, A. (1), Bhakta, K. (1); Murray, K.(1); Ortega, A.Z. (1); Westesen, A.(1); Biegalski, S.(2); Peterson, R. (1) (1) Pacific Northwest National Laboratory. (2) Georgia Institute of Technology.
4:30	10	**Log 321. ANALYTICAL METHODS TO INVESTIGATE KEY RADIONUCLIDES AND HAZARDOUS CONTAMINANTS IN CEMENTITIOUS WASTE FORMS.** Reiser, J.T. (1,P); Asmussen, R.M. (1); Saslow, S.A. (1), Smith, G.L. (1). (1) Pacific Northwest National Laboratory, (P) Presenting author
4:50	11	**Log 379. NOVEL SPENT FUEL REPROCESSING METHOD UTILIZING SOLID STATE ACTINIDE FLUORIDIZATION AND ANTISOLVENT RECRYSTALLIZATION.** Gibbs, T.M. (1,P), Chemey, A.T. (1) 1-Oregon State Univeristy
5:10	12	**Log 385. REVISION TO THE "ALTERNATE ACTINIDE CALIBRATION" MASS RANGE IN ASTM C1590, ALTERNATE ACTINIDE CALIBRATION FOR INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY.** Giaquinto, J. M.(P); Keever, T. J.; Khaing, H.; Roach, B.D.; Wightman, C. Oak Ridge National Laboratory, Oak Ridge, TN.

Session finishes at 5:30 and Luau starts at 6:00

SESSION D: NUCLEAR AND RADIOLOGICAL REFERENCE MATERIALS

MONDAY AFTERNOON IN PADDLER'S ROOM

ORGANIZED BY RICHARD ESSEX, NATIONAL NUCLEAR SECURITY ADMINISTRATION, USA; AND SANG-HAN LEE, KOREA RESEARCH INSTITUTE OF STANDARDS AND SCIENCE, KOREA.

TIME	order	Presentation Title and Speaker
1:00 (30 min)	1	**Log 124. NBL PROGRAM OFFICE NUCLEAR REFERENCE MATERIAL PROGRAM: CURRENT STATUS AND NEAR-TERM PLANS.** Essex, R.M. (1,P) (1) Department of Energy, National Nuclear Security Administration, NBL Program Office (P) Presenting Author
1:30	2	**Log 221. STATISTICAL ANALYSIS OF JAPANESE FUKUSHIMA RADIOACTIVE FOODSTUFF CRM VERIFICATION BY INTERNATIONAL COMPARISON STUDY.** Paul, M.J.(1,2); Byers, M.F.(1); Haas, D.A.(1, P); Biegalski, S.R.(3); De Luna, B.A.(1);Barth, B.S.(1). (1) The University of Texas at Austin. (2) Sandia NationalLaboratories. (3) Georgia Institute of Technology. (P) Presenting Author.
1:50	3	**Log 276. DEVELOPMENT OF VARIOUS REFERENCE MATERIALS FOR QA/QC OF RADIONUCLIDE ANALYSIS IN NUCLEAR WASTE..** Lee, S.-H (1,P); Lee, M.-J (1); Jung, Y.-H (1). (1) Korea Research Institute of Standards and Science. (P) Presenting Author.
2:10	4	**Log 350. A NEW HALEU ISOTOPIC CERTIFIED REFERENCE MATERIAL.** Rogers, K.T.(1, P); Grant, C.E.(1); Hexel, C.R.(1); Parikh, J.R.(1); Ticknor, B.W.(1) Springer, K.W.(1); Essex, R.M.(2). (1) Oak Ridge National Laboratory (2) NBL Program Office (P) Presenting Author.
2:30	5	**Log 366. PUSHING THE LIMITS OF ACTINIDE ISOTOPE ENRICHMENT FOR ISOTOPE DILUTION AND NUCLEAR DATA MEASUREMENTS.** Liezers, M. (1, P); Jeffries, B.D.(1); Pierson, B.D.(1); Hilton, C.D.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
2:50	6	**Log 475. PRODUCTION OF NBL PLUTONIUM ISOTOPIC STANDARDS CRM136A, CRM137A, AND CRM138A.** Parsons-Davis, T.(1, P); Wimpenny, J.(1); Tarng, C.(1); King, C.(1); Henderson, R.(1); Holliday, K.(1); Roberts, D.(1); Williams, R.(1); Mason, P.(2); Toureville, A.(2); Santisi, C.(2); Holland, M. (2); Watters, R.(2); Essex, R(2). (1) Lawrence Livermore National Laboratory. (2) New Brunswick Laboratory Program Office. (P) Presenting Author.
3:10 to 3:30		**COFFEE BREAK**

SESSION D CONTINUES AFTER COFFEE BREAK

3:30	7	**Log 488. DETERMINATION OF TRACE ACTINIDE ABUNDANCES IN PLUTONIUM REFERENCE MATERIALS.** Wimpenny, J. B. (1, P); Tarng, C. (1); Williams, R. (1); Parsons-Davis, T. (1). (1) Lawrence Livermore National Laboratory
3:50	8	**Log 691. CHARACTERIZING NATURAL MATRICIES TO DEVELOP REFERENCE MATERIALS FOR EVIRONMENTAL AND NORM MEAUREMENTS.** Jassin, L. E. (1, P); Taskaev, E. (1); Hexcel, C.R. (2); Rogers, K.T. (2). 1. Eckert & Ziegler Analytics. 2. Oak Ridge National Laboratory. (P) Presenting Author.
4:10	9	**Log 652. DEVELOPMENT OF MIXED ELEMENT RADIOACTIVE REFERENCE MATERIALS FOR MASS SPECTROMETRY MEASUREMENTS OF ENVIRONMENTAL POLLUTANTS IN EUROPE.** Lehnert, A.(1, P); Hanemann, P.(1); van Eerten, D.(1); Leifermann, L.(1); Weissenborn, T(1); Reinhard, S.(1); Schmalz, T.(1); Wendt, K.(2); Lourenço, V.(3); Chambon, L.(3); Russel, B.(4); Simon, J.(5); Arnold, D.(6); Walther, C.(1). (1) Leibniz University Hannover, IRS. (2) Johannes Gutenberg-Universität in Mainz. (3) Université Paris-Saclay, CEA in Paris. (4) National Physical Laboratory in Teddington. (5) Norwegian University of Life Sciences. (6) Physikalisch-Technische Bundesanstalt in Brunswick.
4:30	10	**Log 506. PRODUCTION AND INITIAL CHARACTERIZATION OF A NEW PLUTONIUM METAL STANDARD, CRM126B.** Olson, A.(1,P); Tandon, L.(1); Fox, D.(1); Getha, G.(1); Gilbert, T.(1); Kalin, T.(1); Eiroa-Lledo, C.(1); Peach, W.(1); Risdon, D.(1); Essex, R.(2); Mason, P.(2). (1) Los Alamos National Laboratory. (2) New Brunswick Laboratory Program Office. (P) Presenting Author.
4:50	11	**Log 378. PRODUCTION OF TWO NEW URANIUM RADIOCHRONOMETRY CERTIFIED REFERENCE MATERIALS.** Gaffney, A.M. (1); Worsham, E.A. (1, P); Essex, R.M. (2, 3); Tarng, C. (1); Cocciadiferro, A.N. (1); Woods, L.M. (1); Mason, P. (2). (1) Lawrence Livermore National Laboratory. (2) NBL Program Office. (3) National Institute of Standards and Technology. (P) Presenting Author.

Session finishes at 5:10 and Luau starts at 6:00

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Begin Tuesday Program

The organizers of MARC appreciate the sponsorship by Thermo Fisher for the Tuesday morning coffee break and the afternoon coffee break.

TUESDAY PLENARY SESSIONS

MONDAY MORNING PROGRAM IN COMBINED BALLROOM AND POSTER AREA

ORGANIZED BY STEVE LAMONT AND SAM GLOVER

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:15 (45 min)	1	Plenary**: FOR THE AGES: RADIOCHRONOMETRY SIGNATURES OF URANIUM MATERIALS**. Amy Gaffney, Lawrence Livermore National Laboratory, USA.
9:00 (45 min)	2	Plenary: **THE WORLD'S FIRST REACTOR-PRODUCED PLUTONIUM AND THE UNTOLD STORY OF CAPTAIN JANE**. Georg Steinhauser, TU Wien, Austria, and Los Alamos National Laboratory, USA, and colleagues.
9:45 (30 min)		**Coffee break in Poster Area**
9:45-11:30	5	**Poster Session B** (~60 posters) emphasizing • Track 2: Nuclear Security, Nonproliferation and Forensics • Track 3: Environmental Radioactivity and Dosimetry
1130-1	6	**Lunch break**

SESSION E: APPLICATION OF NUCLEAR TECHNIQUES TO TREATY MONITORING

TUESDAY AFTERNOON IN BALLROOM 3

ORGANIZED BY HARRY MILEY DESERT RESEARCH INSTITUTE, USA; STEVE BIEGALSKI, GEORGIA TECH, USA; ANDERS RINGBOM, SWEDISH DEFENCE RESEARCH AGENCY (FOI), SWEDEN AND TED BOWYER, PACIFIC NORTHWEST NATIONAL LABORATORY, USA.

TIME	order	Presentation Title and Speaker
1:00 (30 min)	1	**Log 554. ANALYZING XENON ISOTOPIC VARIABILITY DURING OPERATIONAL TRANSITIONS AT ANSTO'S NUCLEAR MEDICINE FACILITY.** Friese, J.I.(1,P); Gedz, A.(2); Corry, M.(2); Metz, L.A.(1), Doll, C.(1); Bowyer, T.W.(1). (1) Pacific Northwest National Laboratory. (2) Australian Nuclear Science and Technology Organisation. (P) Presenting Author
1:30	2	**Log 481. TRACER TRANSPORT DYNAMICS IN SUBSURFACE ENVIRONMENTS: INSIGHTS FROM THE PE1-A TRACER EXPERIMENT.** Johnson, C.M. (1,P); Lowrey, J.D. (1), Burghardt, J.A. (1); Feldman, J.D. (1); PE1-A Experiment Team (2). (1) Pacific Northwest National Laboratory. (2) See Authorship list on Experiment Report LLNL-TR-864107. (P) Presenting Author.
1:50	3	**Log 516. TOWARD A NOBLE GAS SYSTEM FOR NEAR-FIELD MONITORING.** Humble, P.H.(1); Bottenus, D.R.(1); Serkowski, J.(1); Salalila, M.(1); Ely, J.H.(1,P). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
2:10	4	**Log 458. COMPARISON OF MEASURED AND SIMULATED RADIOTRACER TRANSPORT THROUGH COMPLEX TERRAIN.** Stave, S.C.(1,P); Bertschinger, K.L.(1); Emmons, S.B.(1); Fast, J.D.(1); Siciliano, E.R.(1); Gowardhan, A.A.(2); and the PE1 REACT Team. (1) Pacific Northwest National Laboratory. (2) Lawrence Livermore National Laboratory. (P) Presenting Author.
2:30	5	**Log 556. VALIDATION OF AEOLUS LARGE EDDY SIMULATION MODEL USING REACT22 FIELD DATA.** Gowardhan, A.A. (1,P); Stave, S.C. (1) Lawrence Livermore National Laboratory. (2) Pacific Northwest NationalLaboratories. (3). (P) Presenting Author.
2:50	6	**Log 125. ADVANCING ATOM TRAP TRACE ANALYSIS (ATTA) FOR RADIOXENON DETECTION: ENHANCING NUCLEAR TREATY VERIFICATION AND FORENSICS.** Hartig, K.C. (1, P); Scoville, J.A. (2); Anderson, M. (2); Knize, R.J. (2). (1) Unviersity of Florida (2) United States Air Force Academy (P) Presenting Author.
3:10 – 3:30		**COFFEE BREAK**

SESSION E CONTINUES AFTER COFFEE BREAK

3:30	7	**Log 467. PERSPECTIVE ON RADIONUCLIDE MEASUREMENTS AT CEA/DAM FOR NUCLEAR EXPLOSION DETECTION.** Topin, S. (1,2,P); Paradis, H. (1); Gross, P.(1); Morin, M. (1); Mano, C.-P.(1); Lenouvel, H.-D.(1); Couchaux, G. (1). (1) CEA DAM Ile de France. (2) CNAM Paris, EPN7. (P) Presenting Author.
3:50	8	**Log 542. ULTRA SENSITIVE MEASUREMENTS OF AIRBOURNE NUCLEAR DEBRIS – PROGRESS.** Britton R.(1,P), Davies A.(1), Hermanspahn N.(1). (1) Preparatory Commission for the CTBTO
4:10	9	**Log 579. NUCLEAR FORENSICS ON SWIPE SAMPLES COLLECTED AT THE SALASPILS RESEARCH REACTOR IN LATVIA.** Swider, J.R. (1); Barons, E. (2,P); Murnieks (2); Kips, R. (1); Jacobsen, B. (1). (1) Lawrence Livermore National Laboratory. (2) Latvian Environment, Geology and Meteorology Center.
4:30	10	**Log 598. INTERLABORATORY COMPARISON OF SECONDARY ION MASS SPECTROMETRY ANALYSES OF NUCLEAR FORENSIC SAMPLES FROM THE 7TH COLLABORATIVE MATERIAL EXERCISE.** Lorincik, J.(1, P); Swider, J.(2); Kips, R.(2); Liu, M.-Ch.(2); Tenner, T.J.(3); Elantyev, I.(1).
4:50	11	**Log 651. MANAGING RADIOXENON MONITORING NETWORKS.** M. Luchkov(1); A. Wehrhahn(1); B. Flierl(1); V. Thorén (1, P). (1) Scienta Envinet. (P) Presenting Author.
5:10	12	**Log 697. LANL SPECIALIZED FACILITY FOR NONDESTRUCTIVE ASSAY OF LOW-LEVEL URANIUM AND PLUTONIUM SAMPLES.** M. Boswell, S. Lamont, E. Guardincerri, D. Soenke, and J. Williams (1) Los Alamos National Laboratory

Session finishes at 5:10

SESSION F: RADIOCHRONOMETRY FOR NUCLEAR FORENSICS AND NONPROLIFERATION APPLICATIONS

TUESDAY AFTERNOON IN COMBINED BALLROOMS 1 AND 2

ORGANIZED BY THERESA KAYZAR-BOGGS, LOS ALAMOS NATIONAL LABORATORY, USA; CHRISTINE YIFENG CHEN, LAWRENCE LIVERMORE NATIONAL LABORATORY, USA; MATTHEW HIGGINSON, AWE, UK.

TIME	order	Presentation Title and Speaker
1:00 (30 min)	1	**Log 485. RADIOCHRONOMETRIC DATING OF PARTICLES.** Savina, M.R.(P) Lawrence Livermore National Laboratory
1:30	2	**Log 281. AGE DATING INDIVIDUAL PARTICLES WITH 230TH-234U AND 231PA-235U CHRONOMETERS USING LG-SIMS.** Wood, R.S. (1, P); Cunningham, H.S. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
1:50	3	**Log 370. RADIOCHRONOMETRY SIGNATURES ENGENDERED DURING LARGE-SCALE VACUUM INDUCTION MELTING CASTING OF A DEPLETED URANIUM METAL LOG.** Rice, N.T. (1, P); Wende, A.M. (1); Luitjohan, K.E. (1); Edwards, M.A. (1); LaMont, S.P. (1); Sanborn, M.E. (1); Torrano, Z.A. (1); Urso, V. J. (1); Denton, J.S. (1). (1) Los Alamos National Laboratory. (P) Presenting Author.
2:10	4	**Log 517. U.S.-U.K. INTERLABORATORY COMPARISON CONFIRMS RADIOCHRONOMETRIC DISCORDANCE AS A SIGNATURE OF VACUUM INDUCTION MELTING IN CAST URANIUM METALS.** Chen, C.Y. (1, P); Higginson, M.A. (2, P); Edwards, M.A. (3); Ainge, A. (2); Cocciadiferro, A. (1); Cross, S. (2); Denton, J. (3); Dunne, J. (2); Engel, J. (3); Gaffney, A.M. (1); Gilligan, C. (2); Johnson, A. (1) Lamont, S.P. (3); Luitjohan, K.E. (3); Oldman, C. (2); Page, S. (2); Puxley, C. (2); Rice, N.T. (3); Sanborn, M.E. (2); Shilling, A. (3); Steiner, R.E. (3); Stow, M. (2); Wende, A.M. (3); Woods, L.M. (1); Worsham, E.A. (1). (1) Lawrence Livermore National Laboratory, USA. (2) Atomic Weapons Establishment, UK. (3) Los Alamos National Laboratory, USA.
2:30	5	**Log 464. ADVANCING RADIOCHRONOMETRY: EXPLORING NORMAL AND INVERSE U-TH ISOCHRON ANALYSES OF URANIUM METALS.** Inglis, J. (1,P); Pollington, A. (1); Rice, N. (1); Wende, A. (1); LaMont, S. (1); Steiner, R. (1). (1) Los Alamos National Laboratory. (P) Presenting Author.
2:50	6	**Log 285. MICRON MATTERS: SMALL IMPURITIES, BIG TIME IN ISOCHRON RADIOCHRONOMETRY.** Chan, C.F.(1, P); Boro, J.R.(1); Gaffney, A.M.(1); Marks, N.E.(1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
3:10		**COFFEE BREAK**

Session F continues after Coffee Break

3:30	7	**Log 346. 234U/230TH RADIOCHRONOMETRY FOR URANIUM MATERIALS BY ALPHA SPECTROMETRY FOR NUCLEAR FORENSICS ANALYSIS.** Macsik, Z.(1,P); LaMont, S.P.(1,2); Wende, A.M.(1); Flanagan, D.C.(1); Steiner R.E.(1). (1) Los Alamos National Laboratory. (2) University of New Mexico. (P) Presenting Author.
3:50	8	**Log 235. THE FEASIBILITY OF HELIUM AS ADDITIONAL RADIOCHRONOMETRIC TECHNIQUE.** Shilling A. (1, P); Puxley, C (1); Harker, R. (1); Higginson, M. (1); Gilligan, C. (1); Dawkins B. (1); Kaye, P. (1). (1) AWE Nuclear Security Technologies. (P) Presenting Author.
4:10	9	**Log 266. A NUCLEAR FORENSIC ANALYSIS OF A HISTORICAL RA-226 PIGMENT SAMPLE.** Garcia, J.R. (1,2,3,P); Bond, E.M. (3); Folden III, C.M. (1,2). (1) Department of Chemistry at Texas A&M University. (2) Cyclotron Institute at Texas A&M University. (3) C-NR at Los Alamos National Laboratory. (P) Presenting Author.
4:30	10	**Log 436. PU AGE DATING ON TRACE AMOUNT OF NUCLEAR MATERIAL.** Hubert, A. (1, P); Varga, Z. (2); Burban, S. (1). (1) CEA, DAM, DIF, F-91297 Arpajon, France. (2) European Commission, Joint Research Centre, Karlsruhe, Germany. (P) Presenting Author.
4:50	11	**Log 479. RADIOCHRONOMETRY OF A YOUNG PLUTONIUM STANDARD: AN INTERLABORATORY COMPARISON.** Scheiderich, K. (1); Worsham, E.(1,P); Gaffney, A.M. (1); Edwards, M.A.(2); Macsik, Z. (2); Wende, A.M. (2); Steiner, R.E. (2) Sanborn, M.E., (2); Fisher, W.S. (2); Nicholl, A. (3); Varga, Z. (3); Wallenius, M. (3); Mayer, K. (3). (1) Lawrence Livermore National Lab (2) Los Alamos National Lab (3) Joint Research Center Karlsruhe (P) Presenting Author.

Session finishes at 5:10

SESSION G: ADVANCES IN THE NUCLEAR FUEL CYCLE – RADIO AND ANALYTICAL CHEMISTRY SUPPORTING RE-PROCESSING, CHARACTERIZATION, AND WASTE FORM DEVELOPMENT (DAY 2 OF 2)

TUESDAY AFTERNOON IN BALLROOM 4

ORGANIZED BY DAVID DIPRETE, SAVANNAH RIVER NATIONAL LABORATORY, USA; NATHALIE WALL, UNIVERSITY OF FLORIDA, USA; ELISE CONTE, PACIFIC NORTHWEST NATIONAL LABORATORY, USA; AND JOSEPH GIAQUINTO, OAK RIDGE NATIONAL LABORATORY, USA.

TIME	order	Presentation Title and Speaker
1:00 (30 min)	1	**Log 391. ROTATING PACKED BEDS FOR LANTHANIDE RECOVERY FROM USED NUCLEAR FUEL.** Kent, K.M. (1,P); Wang, I.(1); Lai, G.(1); Dean-Kersten, W.R.(2); Servis, A.G.(2); Duval, C.E.(1). (1) Case Western Reserve University. (2) Argonne National Laboratory. (P) Presenting Author.
1:30	2	**Log 400. ENCAPSULATION OF METAL IONS USING FUNCTIONALIZED SOLID PHASE EXTRACTANTS.** Peterman, D.R. (1,P);Pilgrim, C.D.(1); Anderson, K.R. (1); Rehbein, S.M. (1); Holmbeck, G.P. (1). (1) Radiochemical Separations and Radiation Science, Idaho National Laboratory
1:50	3	**Log 434. MULTI FISSION PRODUCT SEPARATION AND ANALYSIS IN LIGHT WATER REACTOR FUEL .** Speetjens, S.(1, P); Bubas, M.(1); Conte, E.R.(1). (1) Pacific Northwest National Laboratory. (P) Presenting.
2:10	4	**Log 453. ZIRCONIUM MOLYBDATE INTERACTIONS WITH ACTINIDES.** Duckworth, A.(1, P); Gogolski, J.(2); Rudisill, T.(2); Fara, R.(2); Wall, N.(1). (1) The University of Florida. (2) Savannah River National Lab. (P) Presenting Author.
2:30	5	**Log 454. ACTINIDE SEPARATION BY COLUMN METHOD USING POLYVINYLPOLYPYRROLIDONE.** Wada, K. (1, 2, P), Kazama, H. (3), Abe, C. (4), Ohnishi, T. (5), Yamamoto, M. (2), Taguchi, S. (2), Kuno, T. (2), Maeda, K. (5), Idemitsu, K. (4), Suzuki, T. (1). (1) Department of Nuclear Technology, Nagaoka University of Technology. (2) TRP Decommissioning Center, Japan Atomic Energy Agency. (3) Graduate School of Science, Osaka University. (4) Institute of Material Science, Tohoku University. (5) Fast Reactor Cycle Research and Development Center, Japan Atomic Energy Agency. (P) Presenting Author
2:50	6	**Log 469. ONLINE ALPHA MONITORING OF MIXED ALPHA/BETA SOURCES WITH TENSIONED METASTABLE FLUID DETECTORS.** Boyle, N.M. (1,P); DiPrete, D.P. (1); Whiteside, T. (1); Taleyarkhan, R.P. (2); Ozerov, S. (2); (1) Savannah River National Lab. (2) Purdue University (P) Presenting Author.
3:10		**COFFEE BREAK**

Session G Continues after Coffee Break

3:30	7	**Log 505. REAL-TIME GROSS ACTINIDE MONITORING IN EXTREME (1E6:1) BETA-GAMMA BACKGROUND FLUID STREAMS USING MINI-ATMFDS.** Ozerov, S. (1,P); Boyle, N. (1), DiPrete, D. (1); Taleyarkhan, R. (1). (1) Purdue University. (P) Presenting Author
3:50	8	**Log 586. DETECTION OF REACTIVE OXYGEN SPECIES IN URANYL PEROXIDE MATERIALS USING ELECTRON PARAMAGNETIC RESONANCE AND VIBRATIONAL SPECTROSCOPIES.** Brett Lottes (1, P), Benjamin Stein (2), Samuel Michael Greer (2), Cassandra Gates (2), Korey P. Carter (1) University of Iowa Department of Chemistry(1) Los Alamos National Lab (2)
4:10	9	**Log 587. APPLICATION OF INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY IN THE ANALYSIS OF PLUTONIUM CONTENT OF FAST CRITICAL ASSEMBLY FUEL DISPOSITION.** Bonilla HJ (1,P), Wyeth NG (1), Jones MA (1), Morales MA (1). (1) Savannah River National Laboratory. (P) Presenting Author.
4:30	10	**Log 599. OPTIMIZING THE SCALING PROCESS FOR URANIUM RECOVERY FROM IONIC LIQUIDS.** Olney, R. (1, P), Schröder, F. (2), Bryden, T. (2), Czerwinski, K. (1), Hatchett, D. (1). (1) The University of Nevada - Las Vegas. (2) URENCO. (P) Presenting Author.
4:50	11	**Log 663. ROTATING PACKED BEDS FOR LIQUID-LIQUID TRIVALENT LANTHANIDE AND ACTINIDE SEPARATIONS.** Dean-Kersten, W.(1, P); Kent, K. (2); Wang, I. (2); Lai, G. (2); Duval, C. (2); Servis, A. (1) (1) Argonne National Laboratory (2) Case Western Reserve University (P) Presenting Author.
5:10	12	**Log 676. LIPOPHILIC SULFONAMIDOPHENOL EXTRACTANTS & SENSORS FOR ALKALINE HIGH-LEVEL WASTE (HLW).** Ruddock, L.D. (1); Mudgal, M.M. (1); DeSimone, A.D. (1); Panzer, R. (1); Adedoyin, O.W. (1); Morozov, A. N. (1); Mebel, A. M. (1); Lehman-Andino, I. (2); DiPrete D.P, (2); Kavallieratos, K. (1,P). (1) Florida International University. (2) Savannah River National Laboratory. (P) Presenting Author.

Session finishes at 5:30

SESSION H: SEPARATION CHEMISTRY AND TARGET PREPARATION FOR NUCLEAR CHEMISTRY EXPERIMENTS

TUESDAY AFTERNOON IN PADDLER'S ROOM

ORGANIZED BY RALF SUDOWE, COLORADO STATE UNIVERSITY, USA; AND JENNIFER SHUSTERMAN, LAWRENCE LIVERMORE NATIONAL LABORATORY, USA.

TIME	order	Presentation Title and Speaker
1:00 (30 min)	1	**Log 264. SELECTIVE SEPARATION OF ES-254 FROM OTHER ACTINIDES AND IMPURITIES.** Du, M. (1, P). (1) Oak Ridge National Laboratory. (P) Presenting Author.
1:30	2	**Log 270. IRRADIATION INDUCED CHANGES IN MIXED (TH,U)OXIDE THIN FILMS.** Cabanas, N.(1, P); Manukyan, K. (2); Aprahamian, A. (1,2). (1) Department of Chemistry and Biochemistry University of Notre Dame. (2) Notre Dame Nuclear Science Laboratory. (P) Presenting Author.
1:50	3	**Log 284. INTEGRATING STEREOLITHOGRAPHY WITH POLYMER-ASSISTED DEPOSITION FOR TUNABLE ACTINIDE OXIDE TARGET PRODUCTION.** Hastings, A.M.(1,P); Maxwell, K.J.(1); Boro, J.R.(1); Griffiths, J.(1); Parsons-Davis, T.(1); Shusterman, J.A.(1). (1) Lawrence Livermore National Laboratory. (P) Presenting.
2:10	4	**Log 342. TOWARD OPTIMIZED LIGAND SELECTION: A REVIEW FOR NUCLEAR FUEL REPROCESSING.** Alonzo, J.T. (1,2,P); Abergel, R.J. (1,2). (1) University of California - Berkeley (2) Lawrence Berkeley National Laboratory (P) Presenting Author.
2:30	5	**Log 414. PREPARATION AND CHARACTERIZATION OF PU-239 AND PU-240 RECOIL ION SOURCES FOR U-235M AND U-236 STUDIES..** Reed, L. E. (1, P); Raggio, A. (2); Renisch, D. (1, 3); Block, M. (1, 3, 4); Düllmann, Ch.E. (1, 3, 4); Julin, J. (2); Kivekäs, M. (2); Laitinen, M. (2); Mokry, C. (1, 3); Moore, I. D. (2); Pohjalainen, I. (4); Runke, J. (1, 4); Sajavaara, T. (2); Warbinek, J. (1, 4). (1) Johannes Gutenberg University Mainz, Germany. (2) University of Jyväskylä, Finland. (3) Helmholtz-Institut Mainz, Germany. (4) GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt, Germany. (P) Presenting Author.
2:50	6	**Log 422. DEVELOPMENT AND IRRADIATION OF A XE-136 TARGET FOR THE PRODUCTION OF CS-136.** Glennon, K.J.(1,P); Gharibyan, N.(1); Wilkinson, J.T.(2); Velsko, C.A.(1); Tumey, S.J.(1). (1) Lawrence Livermore National Lab. (P) Presenting Author.
3:10 – 3:30		**COFFEE BREAK**

SESSION H CONTINUES AFTER THE COFFEE BREAK

3:30	7	**Log 591. RADIOACTIVE TARGET FABRICATION EFFORTS AT LANL.** Essenmacher, S.D.(1,P); Lee, H.Y.(1); Mocko, V.(1); Stamatopoulos, A.(1); Kuvin, S.A.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
3:50	8	**Log 685. EFFORTS TOWARDS HIGH SPECIFIC ACTIVITY PRODUCTION OF AUGER ELECTRON EMITTERS WITH GERMANIUM-71.** Abel, E.P. (1,P), Jaussi, M. (2, 3), Erfurth, N. (1). (1) Idaho National Laboratory, (2) Idaho Accelerator Center, (3) Idaho State University
4:10	9	**Log 302. POLYMER-ASSISTED DEPOSITION WITH A TWIST: USING NANOPARTICLE FEEDSTOCKS FOR TARGET PRODUCTION.** Maxwell, K.J. (1, P); Hastings A.M. (1); Parsons-Davis T. (1); Shusterman J.A. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

Session finishes at 4:30

SESSION I: EMERGING RADIOANALYTICAL TECHNIQUES, ADVANCES AND APPLICATIONS IN THE PRODUCTION OF ESSENTIAL RADIONUCLIDES

TUESDAY AFTERNOON IN HONU'S EVENT ROOM

ORGANIZED BY NEIL TAYLOR, OAK RIDGE NATIONAL LABORATORY, USA; VERONIKA MOCKO, LOS ALAMOS NATIONAL LABORATORY, USA; AND BENJAMIN ROACH, OAK RIDGE NATIONAL LABORATORY, USA.

TIME	order	Presentation Title and Speaker
1:00	1	**Log 149. AUTOMATED RADIOISOTOPE PURIFICATION USING HIGH PRESSURE ION CHROMATOGRAPHY: A LOOK TO THE FUTURE OF ISOTOPE PRODUCTION AT OAK RIDGE NATIONAL LABORATORY.** Roach, B. D. (1,P), Gaddis, K. A. (1), Keever, T. J. (1), Thakur, P. (1), Davern, S. M. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.
1:15	2	**Log 150. INTEGRATED ONLINE GAMMA SPECTROSCOPY AND ALPHA COUNTING TOOLS FOR ENHANCED RADIOCHEMICAL SEPARATION AND RADIOISOTOPE PRODUCTION.** Taylor, N. R. (1,P), Parker, C. J. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.
1:30	3	**Log 211. FROM SYNERGIC SOLVENT EXTRACTION TO EXTRACTION CHROMATOGRAPHIC RESINS FOR GADOLINIUM AND TERBIUM SEPARATIONS.** Holiski, C.K. (1,2, P); Hoekstra, L. (3); Becker, N. (1); Hennkens, H.M. (4,5); Embree, M.F (5); Wang, M-J. (1); Sjoden, G.E. (1); Mastren, T. (1). (1) University of Utah, (2) Lawrence Livermore National Laboratory, (3) Texas A&M University, (4) University of Missouri, (5) University of Missouri Research Reactor Center (MURR), (P) Presenting Author
1:45	4	**Log 275. MEMBRANE ADSORBERS AS A NEXT-GENERATION TECHNOLOGY FOR AC-225 PURIFICATION.** Radhakrishnan, S.K.(1, P); Venturina, L.A.(1); Lai, G.(1); Sibley, M.M.(1); Duval, C.E.(1). (1) Case Western Reserve University. (P) Presenting Author.
2:00	5	**Log 310. ANALYTICAL CHEMISTRY OF TRITIUM: IMPURITIES AND ISOTOPE SEPARATION.** Kelly, J.T. (1), Guin, T. (1), Angelette, L. (1), Beaumont, P. (1), Larsen, G. K. (1), Colon-Mercado, H. (1), Klein J. (1). (1) Savannah River National Laboratory. (P) Presenting Author.
2:20	6	**Log 377. MICROFLUIDIC DETERMINATION OF MOLYBDENUM(VI) SOLVENT EXTRACTION KINETICS.** Williams, B. (1), Gelis, A. (1), Brown, M.A. (2), (1) University of Nevada, Las Vegas (2) Argonne National Laboratories. (P) Presenting Author.
2:40	7	**Log 632. RADIOCHEMICAL METHODS IN PRODUCTION OF RADIONUCLIDES AT A CYCLOTRON.** Bernd Neumaier, Syed M. Qaim
3:00 -3:30		**Coffee break (Session J will start after coffee break)**

SESSION J: DEVELOPMENT AND APPLICATION OF NEUTRON, X-RAY, AND IN VIVO COUNTING TECHNIQUES TO QUANTIFY STABLE ELEMENTS AND RADIOISOTOPES IN HUMAN BODY

TUESDAY AFTERNOON IN ROOM 5 AFTER COFFEE BREAK

ORGANIZED BY DR. LINDA NIE, PURDUE UNIVERSITY, USA; AND HENRY SPITZ, UNIVERSITY OF CINCINNATI, USA;

3:00-330		**SESSION STARTS AFTER COFFEE BREAK**
3:30	1	**Log 209. ASSESSMENT OF LONG-LIVED CONTAMINANTS IN ZR-89 LABELED MONOCLONAL ANTIBODIES.** Metzger, R.L.(1,P); Lasche, P (2). (1) Radiation Safety Engineering. (2) Snakedance Scientific. (P) Presenting Author.
3:50	2	**Log 210. FEASIBILITY OF A PORTABLE X-RAY TUBE BASED KXRF SYSTEM TO MEASURE LEAD IN BONE.** Grier, T. R. (1); Weisskopf, M. G. (2); Taylor, K. M. (3); Specht, A. J. (1, P). (1) Purdue University. (2) Harvard T.H. Chan School of Public Health. (3) United States Army Research Institute of Environmental Medicine. (P) Presenting Author.
4:10	3	**Log 265. DEVELOPMENT, CLINICAL APPLICATION OF AN IN VIVO NEUTRON ACTIVATION ANALYSIS SYSTEM FOR NA STORAGE AND HYPERTENSION STUDY.** Song Yue (1, P); Linda H Nie(1). (1) Purdue Univeristy, West Lafayette. (P) Presenting Author.
4:30	4	**Log 272. PORTABLE X-RAY FLUORESCENCE (XRF) TO MEASURE LEAD (PB) AND STRONTIUM (SR) IN HUMAN BONE.** Nie, L. (1, P). (1) Purdue Univeristy, West Lafayette. (P) Presenting Author.
4:50	5	**Log 463. APPLICATION OF TOTAL REFLECTION X-RAY SPECTROMETRY IN ELEMENTAL ANALYSIS OF HUMAN CELLS AND TISSUES.** Pejovic-Milic, A.(1) (1) Department of Physics, Toronto Metropolitan University, Toronto

Session finishes at 5:10

Begin Wednesday Program

The organizers of MARC appreciate the sponsorship by Nu Instruments for all Wednesday breaks including breakfast, the morning coffee break and the afternoon coffee break.

SESSION K: ACTINIDE MASS SPECTROMETRY FOR TREATY MONITORING AND NUCLEAR FORENSICS

ALL DAY WEDNESDAY IN BALLROOM 1

ORGANIZED BY FABIEN POINTURIER, CEA, FRANCE; ROBERT STEINER, LOS ALAMOS NATIONAL LABORATORY, USA; AND DAVID CHILD, ANSTO.

TIME	order	Presentation Title and Speaker
8:00	1	**Log 143. CHRONOMETRY MEASUREMENTS OF URANIUM PARTICLES BY LG-SIMS.** Williamson, T.L. (1, P); Groopman, E.E. (1); Pope, T.R. (2). (1) National Institute of Standards and Technology. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
8:20	2	**Log 241. DETECTION AND CHARACTERIZATION OF PLUTONIUM BEARING PARTICLES USING LARGE GEOMETRY-SECONDARY ION MASS SPECTROMETRY AN ADDITIONAL TOOL FOR NUCLEAR SAFEGUARDS.** Fauré, A.-L. (1,P); Cornaton, M. (1); Pointurier, P. (1) (1) CEA, DAM, DIF F-91297 Arpajon, France
8:40	3	**Log 462. URANIUM PARTICLE ANALYSIS BY SINGLE PARTICLE-ICP-MS.** Manard, BT (1,P), Stanberry, J (1), Szakas, S (1), Ticknor, BW (1), Andrews, H (1), Dunlap, D (1). (1) Oak Ridge Nationa Laboratory
9:00	4	**Log 604. ADVANCES IN SINGLE-PARTICLE ICP-MS FOR ACTINIDE DETECTION WITHIN FORENSICS APPLICATIONS.** VanGundy, R.A. (1,P); Duffin, A.M. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
9:20	5	**Log 499. CHARACTERISATION OF INDIVIDUAL MICRON SIZED NUCLEAR WEAPONS FRAGMENTS FROM THE THULE AREA BY RL-SNMS.** Hanemann, P.(1,P); Weissenborn, T.(1); Lehnert, A.(1); Qiao, J. (2); Nilsen, S.(2); Walther, C. (1). Leibniz University Hannover, IRS. (2) Technical University of Denmark. (P) Presenting Author
9:40		**Coffee break**
10:00	6	**Log 382. SINGLE ALIQUOT NUCLEAR FORENSICS.** Engel, J.R. (1,P); Rice, N. T. (1); Knapp, J.G. (1) Buettner, J.E. (1); Wende, A.M. (1); Sanborn, M.E. (1). (1) Los Alamos National Laboratory
10:20	7	**Log 279. AN R SHINY GRAPHICAL USER INTERFACE FOR HIGH-PRECISION MASS SPECTROMETRIC DATA ANALYSIS.** LaBone, E.D.(1,P); Samperton, K.M.(1); Bowden, S.(1); Riche, A.T.(1). (1) Savannah River National Laboratory. (P) Presenting Author.
10:40	8	**Log 280. BAYESIAN STATISTICAL ANALYSIS FOR MASS SPECTROMETRIC DATA PROCESSING.** McLarty, E.C.(1, 2, P); LaBone, E.D.(1); Samperton, K.M.(1); Bowden, S.(1); Riche, A.T.(1). (1) Savannah River National Laboratory. (2) Clemson University School of Mathematical and Statistical Sciences (P) Presenting Author.
11:00	9	**Log 354. A ROBUST ASSESSMENT OF HIGH-PRECISION PLUTONIUM ISOTOPIC ANALYSIS BY THERMAL IONIZATION MASS SPECTROMETRY.** Riche, A.T. (1,P); Samperton, K.M.(1); Norris, N.(1); Perez, S.(1); Morales-Arteaga, M.(1); Bonilla, H.(1); McNamara, L.(1). (1) Savannah River National Laboratory. (P) Presenting Author.
11:20	10	**Log 448. EXPLORING THE SENSITIVITY OF URANIUM ISOTOPE RATIO MEASUREMENTS BY TIMS.** Reinhard, A.A.(1, P); Inglis, J.D.(1); Kara, A.S.(1); Cook, D.(1); Hinrichs, K.A.(1); LaMont, S.P.(1); Steiner, R.E.(1) (1) Los Alamos National Laboratory, Nuclear and Radiochemistry group
11:40-1		**Lunch break followed by afternoon sessions**

SESSION K (CONTINUED AFTER LUNCH)

1:00	11	**Log 720. PREDICTING, OPTIMIZING, AND ASSESSING PRECISION AND ACCURACY OF ISOTOPIC MASS SPECTROMETRIC SYSTEMS.** Bowden, S.(1,P); Samperton, K.M.(1); (1) Savannah River National Laboratory. (P) Presenting Author.
1:20	12	**Log 668. SIMULTANEOUS INTERELEMENT ACTINIDE ANALYSES USING GAS PHASE REACTIONS ON THE NEOMA MS/MS MC-ICP-MS.** Scott, S.R. (1, P); Hobbs, K.P. (1); Arnquist, I. J. (1); Schlieder, T.D. (1); Sullivan, D.L. (1); French, A.D. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
1:40	13	**Log 419. VALIDATION OF 236U CORRECTION FOR 237NP ASSAY ANALYSIS IN URANIUM MATRICES—A CROSS PLATFORM APPROACH.** Fisher, W.S.(1,P); Miller, H. B. D.(1); Sanborn, M.E. (1); Rice, N.T. (1); Macsik, Z. (1); Inglis, J. D. (1); Steiner, R.E. (1). (1) Los Alamos National Laboratory
2:00	14	**Log 629. EXPERIENCES IN METHOD DEVELOPMENT OF ULTRA-TRACE NP-237 MEASUREMENTS BY MASS SPECTROMETRY IN ABSENCE OF A NP-236 TRACER.** Dunne, J.A.(1, P); Jiang, J.(1); Page, S.(1); Stow, M.(1); Stokes, T.(1); Horgan G.(1). (1) AWE.
2:20	15	**Log 706. DEVELOPMENT OF A CYCLOIDAL MASS ANALYZER FOR APLLICATIONS IN NONPROLIFERATION AND NUCLEAR FORENSICS.** Mannion, J. (1, P); Mannion, D. (1); Greer, R. (1); Fitzgerald, C. (1); Samperton, K. (1); LaBone, E. (1); Amsden, J. (2); Serpa, R.B. (2); Denton, M.B. (3); Keogh, J. (3); Zarzana, C. (4); Andrus, J. (4). (1) Savannah River National Laboratory. (2) Duke University. (3) University of Arizona. (4) Idaho National Laboratory. (P) Presenting Author.
2:40	16	**Log 248. ELECRTHERMAL VAPORIZATION AS A NEW METHOD FOR PRE-INSPECTION CHECK SAMPLES.** Hexel, C.R. (1,P); Manard, B.T. (1); Thompson, C. (1); Zirakparvar, N.A. (1); Metzger, S.C. (1); Adkisson, M.L. (1); Dunlap, D.R. (1); Parihk, J.H. (1); Springer, K.W. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.
3:30-5		**Poster Session**

Session finishes at 3:00 and Posters Start at 3:30

SESSION L: ADVANCES IN MICROSCOPY, IMAGING, AND SPATIALLY RESOLVED METHODS FOR NUCLEAR SECURITY APPLICATIONS

ALL DAY WEDNESDAY IN BALLROOM 2

ORGANIZED BY JAMES BOWEN, OFFICE OF NUCLEAR FORENSICS, USA; ABIGAIL BICKLEY, AIR FORCE INSTITUTE OF TECHNOLOGY, USA AND F.C. (IKE) DIMAYUGA, CANADIAN NUCLEAR LABORATORIES, CANADA.

TIME	order	Presentation Title and Speaker
8:00	1	**Log 369. APPLICATION OF MICROANALYTICAL TECHNIQUES (SEM/EDX/RAMAN) TO THE CHARACTERIZATION OF POST-EXPLOSION PARTICLES.** Martinez, M.(1, P); Totland, M.(1); Chaudhuri, A.(1); Cota-Sanchez, G.(1); Garcia-Alonso, J.(1); Gruntz, T.(1); Ayyagari, A.(1); Afolabi, O.(1). (1) Canadian Nuclear Laboratories. (P) Presenting Author.
8:20	2	**Log 347. INVESTIGATING PARTICLE FORMATION IN NUCLEAR FIREBALLS.** Vasu, S.S.(1, P); Koroglu, B. (2); Urso, J. (1); Dennis, C. (1); Loye, T. (1); Ambarish, A. (1). (1) University of Central Florida. (2) LLNL.
8:40	3	**Log 367. MICROSAMPLE IDENTIFICATION WITH ADVANCED DIGITAL AUTORADIOGRAPHY METHODS.** McDonald B.(1,P), Hossbach T.(1), Zalavadia M.(1), Pagani L.(1), Patz H.(1,2), Wood R.S.(1), Miller M.(1), Cunningham H.(1), Fehringer B.(1). (1) Pacific Northwest National Laboratory (2) The University of Florida (P) Presenting Author.
9:00	4	**Log 323. REAL-TIME PARTICLE DISCRIMINATION IN DIGITAL AUTORADIOGRAPHY FOR NUCLEAR FORENSICS.** Patz, H. (1, 2, P), Baciak, J.E. (1), Hartig, K.C. (1), McDonald, B. (2), Zalavadia, M. (2). (1) University of Florida. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
9:20	5	**Log 470. A SENSITIVITY STUDY FOR A DIRECT IMAGING APPROACH FOR GRATINGS-BASED PHASE CONTRAST X-RAY IMAGING (GBX) AT HIGH ENERGIES.** Sarceno, A.N. (1, 2, P); Kasparek, D.M. (1); Miller, E.A. (1). (1) Pacific Northwest National Laboratory, (2) University of Florida, (P) Presenting Author.
9:40 – 10:00		**Coffee break**

SESSION L CONTINUES AFTER COFFEE BREAK

10:00	6	**Log 389. U-METAL MORPHOLOGICAL SIGNATURES DURING LABORATORY STORAGE.** Gibb, L.D. (1,P); Varszegi, A.J. (1); Chung, B.W. (2); McDonald, L.W., IV (3); Simpson, M.F. (1). (1) The University of Utah. (2) Lawerence Livermore National Lab. (3) Oregon State University. (P) Presenting Author.
10:20	7	**Log 594. RECENT ADVANCES IN MORPHOLOGICAL ANALYSES AS A NUCLEAR FORENSICS SIGNATURE AT LOS ALAMOS NATIONAL LABORATORY.** Hanson, A.B.(1, P); Matthies, K.S.(1); Parkes, A.M.(2); Gilbert, M.R.(2); Cohn, J.D.(1); Skurikhin, A.N.(1); Valencia, M.D.(1); Sentz, K. (1) Los Alamos National Laboratory, Los Alamos, NM, USA. (2) AWE Nuclear Security Technologies, Aldermaston, Berkshire, England.
10:40	8	**Log 532. IMPACT OF PRODUCTION SCALE EXTREMES ON URANIUM ORE CONCENTRATE PARTICLE MORPHOLOGY.** Ditcham, T (1,P), Keegan, E (1), Pont, C (1), Hagen, A (2), Gibb, L (3), Meigs, N (3), Sentz, K (4), Hanson, A (4), Matties, K (4), McDonald IV, LW (3) (1) Australian Nuclear Science and Technology Organisation (2) Pacific Northwest National Laboratory (3) The University of Utah (4) Los Alamos National Laboratory
11:00	9	**Log 271. URANIUM CHEMICAL COMPOUND CLASSIFICATION USING SUB-IMAGES AND STATISTICAL MACHINE LEARNING FOR NUCLEAR FORENSICS .** Lambert, L.C. (1), Borghetti, B.J. (1), Bickley, A.A. (1, P). (1) The Air Force Institute of Technology. (P) Presenting Author.
11:20	10	**Log 522. INCORPORATING MICROSCOPY IMAGES INTO A NUCLEAR FORENSICS LIBRARY.** Dimayuga, I.(P); Echlin, M.; Chin, T.; Totland, M.; Pruszkowski, B.; Martinez, M.
11:40-1		**Lunch break followed by afternoon sessions**

SESSION L CONTINUES AFTER LUNCH

1:00	11	**Log 693. CHARACTERIZING URANIUM PARTICLES IN-SITU USING SYNCHROTRON X-RAYS.** Krzysko, A.J.(1, P); Ilavsky, J.(1, 2); Steeb, J(1); McLain, D(1). (1) Argonne National Laboratory. (2) Advanced Photon Source. (P) Presenting Author.
1:20	12	**Log 634. DEVELOPING A COST-EFFECTIVE MULTISPECTRAL IMAGING SYSTEM FOR REAL-TIME NUCLEAR FUEL PELLET INSPECTION.** Dunphy, R. D. (1, P); Bandala, M. (2); Boxall, C. (2); Chard, P. (3); Cockbain, N. (4); Eaves, D. (5); Edwards, P. R. (1); Goddard, D. (4); Hutchinson, D. (5); Ma, X. (2); Marshall, S. (1); Martin, R. W. (1); Murray, P. (1); Parker, A. J. (2); Stirzaker, P. (5); Taylor, C. J. (2); Wilbraham, R. (2); Zabalza, J. (1); Joyce, M. J. (2). (1) University of Strathclyde, Glasgow, G1 1XW, UK. (2) School of Engineering, Lancaster University, Bailrigg, Lancashire, LA1 4YR, UK. (3) Mirion Technologies, Warrington, UK. (4) National Nuclear Laboratory, Workington, UK. (5) Westinghouse Springfields Fuels Ltd., Salwick, Preston, PR4 0XJ, UK. (P) Presenting Author.
1:40	13	**Log 600. ULTRA-HIGH-RESOLUTION MICROCALORIMETER X-RAY SPECTROMETER FOR NUCLEAR FORENSICS CHEMICAL AND ELEMENTAL ANALYSIS IN THE SCANNING ELECTRON MICROSCOPE.** Carpenter, M.H. (1, P), Croce, M.P. (1), McNeel, D.G. (1), Schrieber, K.A. (1), Stark, E.N. (1), Dede, S. (1), Hansen, H. (1), Jackson, D.E. (1), Godt, C.J. (1), Ullom, J. (2), Bennett, D. (2), Mates, J.A.B. (2), Schmidt, D. (2), Weber, J. (2), Gard, J. (3), Becker, D. (3), Morgan, K. (3). (1) Los Alamos National Laboratory. (2) National Institute of Standards and Technology, Boulder. (3) University of Colorado, Boulder. (P) Presenting Author.
2:00	14	**Log 456. 3D VOLUME ANALYSIS OF MULTI-DIMENSIONAL FIB-SIMS DATASETS.** Kracica, M (1,P); Davis, J (1); Oldfield, D (1). (1) Australian Nuclear Science and Technology Organisation (P) Presenting Author.
2:20	15	**Log 631. MIXED U-PU MICROPARTICLE METROLOGY USING LG-SIMS.** Groopman, E.E. (1, P), Williamson, T.L. (1, P), Foley, B. (2), Bronikowski, M. (2), Scott, S.M. (2,3), Wellons, M. (2), King, G. (2), Samperton, K. (2). (1) National Institute of Standards and Technology. (2) Savannah River National Laboratory. (3) DOE/NNSA Office of International Nuclear Safeguards. (P) Presenting Author.
2:40	16	**Log 421. RAPID SINGLE-PARTICLE ANALYSIS OF URANIUM SAMPLES WITH FEMTO-SECOND LASER ABLATION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (LA-ICPMS) AND LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS).** Hull, G.A. (1, P); Inglis, J.D. (1); Sanborn, M.E. (1). (1) Los Alamos National Laboratory. (P) Presenting Author.
3:00	17	**Log 609. EXPLORING THE DIAGNOSTIC VALUE OF THE STABLE OXYGEN ISOTOPIC SIGNATURE IN NUCLEAR FORENSICS. .** Baranowska, P.(1,2, P); Lacey, J.(2); Jones, M.(1); O'Donnel, E.(1); Dunne, J.(3);Dunn, S.(3); Sanders, S. (3) The Unviersity of Nottingham, UK. (1) British Geological Survey, Keyworth, Nottingham, UK. (2) AWE, Aldermaston, Reading, UK. (P) Presenting Author.
3:30-5		**Poster Session**

Session finishes at 3:40 followed by Poster session

SESSION M: NEUTRON ACTIVATION ANALYSIS IN HONOR OF AMARES CHATT†

WEDNESDAY MORNING IN BALLROOM 3

ORGANIZED BY H. HEATHER CHEN-MAYER, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, USA; ZSOLT RÉVAY, TECHNISCHE UNIVERSITÄT MÜNCHEN, GERMANY; AND GWANG-MIN SUN, KOREA ATOMIC ENERGY RESEARCH INSTITUTE, KOREA

TIME	order	Presentation Title and Speaker
8:00	1	**REMEMBERING AMARES CHATT (H. HEATHER CHEN-MAYER, ZSOLT ZSOLT RÉVAY, XIAOLIN HOU, ROBERT GREENBERG)**
8:20	2	**Log 324. ACTIVATION ANALYSIS OF MINIATURIZED NEUTRON DOSIMETER FILMS IN THE HIGH FLUX ISOTOPE REACTOR.** Mulligan, P.L. (1,P); Glasgow, D.C. (1); La Riviere, B.A. (2). (1) Oak Ridge National Laboratory. (2) Sandia National Laboratories. (P) Presenting Author.
8:40	3	**Log 445. A SOFTWARE FOR CALCULATING THE RETENTION OF CR(TMHD)3.** Muckenhuber H. (1,P), Welch J. M. (1), Pichler V. (1), Sterba J. H. (1). (1) Center for Labelling and Isotope Production, TRIGA Center Atominstitut, TU Wien
9:00	4	**Log 465. CROSS-SECTIONS MEASUREMENTS OF ALPHA PARTICLES INDUCED REACTIONS ON NATURAL EUROPIUM TARGET FOR THE PRODUCTION OF THERANOSTIC TERBIUM RADIONUCLIDES.** Colucci, M. (1); E. Nigron, E. (2); Haddad, F. (2,3); Manenti, S. (1); Groppi, F. (1). (1) LASA laboratory, Physics Department of University of Milan and INFN – Milan, Milan, Italy; (2) GIP Arronax, Saint-Herblain, France; (3) Laboratoire Subatech, IN2P3-CNRS, IMT Atlantique, Nantes Universite´, Nantes, France
9:20	5	**Log 493. CURRENT PROGRESS OF NDP AND PGAA SYSTEMS USING COLD NEUTRONS AT KAERI.** KIM, JH.(1,P); Sun, G.M.(1). (1) The Korea Atomic Energy Research Institute
9:40		**Coffee break**
10:00	6	**Log 729. DEVELOPMENTS IN NEUTRON ACTIVATION ANALYSIS USING A MEDICAL ISOTOPE CYCLOTRON.** Duke, M.J.M. (1,P). (1) University of Alberta
10:20	7	**Log 619. PROMPT GAMMA ACTIVATION ANALYSIS OF BRONZE AGE ARTIFACTS.** Maróti, B. (1,P), Révay, Zs. (2), Tarbay J.G. (3), Bíró, Cs. (4). (1) HUN-REN Centre for Energy Research. (2) Forschungs-Neutronenquelle Heinz Maier-Leibnitz (FRM II). (3) HNM Public Collection Centre. (4) Tűzvarázs Művészeti Műhely (bronze casting workshop). (P) Presenting Author.
10:40	8	**Log 647. ELEMENTAL COMPOSITION OF SAND AND ITS HEAVY MINERALS THAT INFLUENCE ACTIVATION SUSCEPTIBILITY.** Gmeling, K.(1,P); Szilagyi, V.(1); Harsanyi, I.(2); Szentmiklosi, L.(3); Revay, Zs.(4). (1) HUN-REN Centre for Energy Research, Budapest Neutron Centre. (2) HUN-REN Wigner Research Centre for Physics. (3) Varian Medical Systems Hungary Ltd. (4) TUM, FRM-II.
11:00	9	**Log 688. NEUTRON ACTIVATION ANALYSIS IN C3-CAM PHOTOSYNTHESIS TRANSITION STUDIES.** Mróz, T(1,P); Kornas, A(2); Brudecki, K (1); Rusin, G(3) (1)The Henryk Niewodniczanski Institute of Nuclear Physics PAS. (2)University of The National Education Commission. (3)The University Hospital in Kraków
11:40-1		**Lunch break followed by afternoon sessions**

SESSION P: DEVELOPMENT AND APPLICATION OF NUCLEAR ANALYTICAL METHODS WITH NEUTRON BEAM TECHNOLOGIES

WEDNESDAY AFTERNOON IN BALLROOM 3

ORGANIZED BY LEI CAO, OHIO STATE UNIVERSITY, USA; AND R. GREGORY DOWNING, RGD RESEARCH, USA.

1:00	11	**Log 226. 4D ISOTOPE TRACKING WITH THE N4DP INSTRUMENT AT MLZ.** Neagu, R. (1,P); Gernhäuser, R. (2); Golenev, S. (2); Märkisch, B. (2); Stieghorst, C. (1); Gilles, R. (1); Revay, Z. (1). (1) Heinz Maier-Leibnitz Zentrum, Technical University of Munich. (2) TUM School of Natural Sciences, Technical University of Munich (P) Presenting Author.
1:20	12	**Log 254. NEW INNOVATIVE DEVELOPMENT AT PENN STATE BREAZEALE REACTOR: COLD NEUTRONS SOURCE INSTALLATIONS AND UTILIZATIONS.** Unlu, K. (1, P), Beck, D. (1). (1) Penn State Nuclear Engineering, Radiation Science & Engineering Center. (P) Presenting Author.
1:40	13	**Log 496. QUATITATIVE ANALYSIS IN PROMPT GAMMA ACTIVATION ANALYSIS.** Zs. Révay (1, P); B. Maróti (2), (1) Technical University Munich, FRM II, Garching, Germany, (2)Center for Energy Research, Budapest Neutron Center, Budapest, Hungary
2:00	14	**Log 701. CHARACTERIZATION OF DUAL-MODE ELPASOLITE SCINTILLATORS IN MIXED RADIATION FIELDS.** Franco, D.(1,P); Barzilov, A.(1). (1) University of Nevada, Las Vegas. (P) Presenting Author.
2:20	15	**Log 704. DEVELOPMENT OF CPB AND CBI PEROVSKITE RADIATION DETECTORS.** Barzilov, A.(1, P); Han, C.(1); Rivera, M.(1); Tonkinson, S.(2); Ragsdale, A.(2); Kutty, M.N.(2); Martinez, J.(2); Dibert, A.(2); Balakrishnan, G.(2); Hecht, A.(2). (1) University of Nevada Las Vegas. (2) University of New Mexico. (P) Presenting Author.
2:40	16	**Log 737. DIRECT NEUTRON CAPTURE MEASUREMENT OF ZIRCONIUM-88 AT CERN N_TOF.** Flanagan, W. (1,2, P); Alpar, G. (1); Bacak, M. (3,4); Moldenhauer, J.(1); Balibrea-Correa J. (5); Lerendegui-Marco J.(5); Garcia-Infantes F. (3,6); Maugeri E.A. (7); CERN n_TOF Collaboration. (1) The University of Dallas. (2) The Unviersity of Texas at Austin. (3) CERN. (4) TU Wien. (5) CSIC - Universidad de Valencia. (6) University of Granada. (7) Paul Scherrer Institut. (P) Presenting Author.
3:30-5		**Poster Session**

SESSION N: ADVANCES IN GAMMA SPECTROMETRY METHODS, INSTRUMENTATION, AND SOFTWARE IN IN THE LABORATORY AND IN THE FIELD

WEDNESDAY MORNING IN BALLROOM 4

ORGANIZED BY GEORGE LASCHE, SNAKE DANCE SCIENTIFIC, USA; AND BRUCE PIERSON, PACIFIC NORTHWEST NATIONAL LABORATORY, USA.

TIME	order	Presentation Title and Speaker
8:00	1	**Log 146. ANGULAR CORRELATIONS OF GAMMA-RAYS FROM FISSION PRODUCT SOLUTION.** Holschuh, T. (1,P); Quist, T. (1); Johnson, J. (1); Diaz, J. (2); Chichester, D. (1). (1) Idaho National Laboratory, (2) Northern Arizona University
8:20	2	**Log 216. APPLICATION OF LABORATORY-BASED PHOTOELECTRON SPECTROSCOPY WITH HARD AND SOFT X-RAYS TO NUCLEAR FORENSICS CHARACTERIZATION OF URANIUM DIOXIDE FUEL..** Dunn S.(1,2, P), Roussel P.(2), Wood A.(3), Spencer B.(3,4), Harrision R.(3), Kaye P.(2), Higginson M.(2), Flavell W.(5,6). (1) Nuclear Futures Institutes, Bangor University. (3) Department of Materials, School of Natural Sciences University of Manchester. (4) Henry Royce Institute, University of Manchester. (5) Photon Science Institute, University of Manchester. (6) Department of Physics and Astronomy, University of Manchester.
8:40	3	**Log 380. INVESTIGATION OF SPECTRAL EMULATION FOR HPGE GAMMA-RAY RESPONSE GENERATION.** Bauyrzhan, A.B.(1, P); Hawari, A.I.(1). (1) North Carolina State University. (P) Presenting Author.
9:00	4	**Log 495. PRECISE QUANTIFICATION OF RADIOISOTOPES BY COINCIDENT GAMMA-GAMMA HPGE SPECTROMETRY.** Archambault, BC (1, P), Pierson, BD (1), Good, EC (1), (1) Pacific Northwest National Laboratory
9:20	5	**Log 536. EVALUATION OF AREAL HALEU FUEL ENRICHMENT VARIATION USING RASTER GAMMA SCANNING.** Maier, A. (1,P); Yankevich, T. (1); Herminghuysen, K. (1); Kauffman, A. (1); Kandlakunta, P. (1); Catalan, M. (2); Cao, L.R. (1). (1) The Ohio State University. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
9:40		**Coffee break**

SESSION N CONTINUES AFTER COFFEE BREAK

10:00	6	**Log 590. MCNP DETERMINATION OF OPTIMIZED COMPTON SUPPRESSED GEOMETRY FOR QUANTIFICATION OF PLUTONIUM IN SOLUTION.** Egozi, C.(1, P); Winkler, R.(1); Charlton, W. S.(2); Landsberger, S.(1). (1) Los Alamos National Laboratory; (2) The University of Texas at Austin
10:20	7	**Log 662. BENEFITS FROM THE LATEST ADVANCEMENT ON MIRION CLOVER DETECTORS.** Ilie, G. (1, P);Masseron, J. (2);Ginsz, M. (2); Ralet, D. (2). (1) Mirion Technologies Inc. - Meriden, CT, USA; (2) Mirion Technologies (Canberra) SAS - Lingolsheim, France
10:40	8	**Log 126. APPLICATIONS OF MICROCALORIMETRIC GAMMA COUNTING TO NUCLEAR FORENSICS RESEARCH.** Pierson, BD (1, P), Batie, G (1), Archambault, BC (1), Good, EC (1), Carpenter, MH (2), Schreiber, KA (2), Croce, MP (2), Becker, D (3), Keller M (3) Gard, J (3) (1) Pacific Northwest National Laboratory (2) Los Alamos National Laboratory (3) National Institute of Technology & Standards
11:00	9	**Log 424. LEVERAGING HERMES-700 FOR PASSIVE GAMMA SPECTROSCOPY MEASUREMENTS OF U-233 FOR ENHANCED THORIUM FUEL CYCLE SAFEGUARDS.** Batie, G. (1, P), Good, E.C. (1), Becker, D. (3), Keller, M. (3), Gard, J. (3), Carpenter, M.H. (2), Schreiber, K.A. (2), Croce, M.P. (2), Pierson, B.D. (1), Archambault, B. C. (1). (1) Pacific Northwest National Laboratory. (2) Los Alamos National Laboratory. (3) National Institute of Technology & Standards. (P) Presenting Author.
11:30-1		**Lunch break followed by afternoon sessions**

SESSION Q: EMERGING TECHNOLOGIES IN NUCLEAR NONPROLIFERATION

WEDNESDAY AFTERNOON IN BALLROOM 4

ORGANIZED BY ANNA ERICKSON, GEORGIA TECH, USA; STEVE BIEGALSKI, GEORGIA TECH, USA; AND MALCOLM JOYCE, UNIV. OF LANCASTER, UK.

1:00	1	**Log 237. REAL-TIME NEUTRON SOURCE LOCALIZATION USING THE NOMAD HE-3 DETECTOR.** Cannon, N.L. (1,2,P); Thompson, N.W. (2); Hutchinson, J.D. (2); Biegalski, S.R. (1); Erickson, A. (1); Nelson, M.A. (2). (1) Georgia Institute of Technology. (2) Los Alamos National Laboratory. (P) Presenting Author.
1:20	2	**Log 304. SMALL-SCALE RADIOCHEMISTRY AND ANALYSIS PLATFORM FOR POST-DETONATION NUCLEAR FORENSICS.** Shusterman, J.A. (1,P); Glennon, K.J (1); Valdovinos, H. (1); Bence, J. A. (1); Wimpenny, J. (1); Cicchetti, N. (2); Parsons-Davis, T. (1); Gharibyan, N. (1). (1) Lawrence Livermore National Laboratory (2) University of Nevada, Las Vegas (P) Presenting Author.
1:40	3	**Log 372. ACTIONABLE UNCERTAINTY QUANTIFICATION METHODS FOR REAL APPLICATIONS OF NEURAL NETWORKS.** Phathanapirom, B. (1); Hatton, C. (1, P); Dayman, K. (1); Stomps, J. (1). (1) Oak Ridge National Lab. (P) Presenting Author.
2:00	4	**Log 402. DEMONSTRATION OF ULTRAVIOLET SENSITIVE 4H-SIC AVALANCHE PHOTODIODES.** Remy, J.L. (1,P); Cao, L.R. (1). (1) The Ohio State University. (P) Presenting Author.
2:20	5	**Log 407. EVALUATION OF ADDITIVE MANUFACTURING SIDE CHANNELS FOR NUCLEAR NONPROLIFERATION APPLICTIONS.** Biegalski, S.R.(1,P); Le, K.(1). (1) Georgia Institute of Technology. (P) Presenting Author.
2:40	6	**Log 411. LANTHANIDE TETRAFLUORTEREPHTHALATE MOFS FOR USE IN OPTICAL DETECTION OF RADIONUCLIDES.** Decoteau, E.A. (1,P); Belatti, C.T.(1); Jacobsohn, L.G.(2); Cahill, C.L. (1). (1) The George Washington University (2) Clemson University
3:00	7	**Log 577. CONSTRAINING SOURCE COMPOSITIONS FROM ANALYSES OF MIXTURES.** Caseres, J.R. (1, P); Fitzgerald, M.A. (1); Sun, Y. (1); Kim, K.K. (1); Norris, G.A.(2). (1) Lawrence Livermore National Laboratory (2) Environmental Protection Agency. (P) Presenting Author.
3:20-3:40	8	**Log 679. ADDRESSING CHALLENGES OF NONPROLIFERATION WITH DISCIPLINED MACHINE LEARNING.** Dayman, K. (1,P); Phathanapirom, B. (1); Stomps, J. (1). (1) Oak Ridge National Laboratoryl. (P) Presenting Author.

SESSION O: RADIOCHEMISTRY OF MOLTEN SALT REACTORS: RECENT PROGRESS, METHODS AND APPLICATIONS

ALL DAY WEDNESDAY IN PADDLER'S ROOM

ORGANIZED BY TONI KARLSSON, IDAHO NATIONAL LABORATORY, USA; DEREK HAAS, UNIVERSITY OF TEXAS, USA; AND SHAYAN SHAHBAZI, ARGONNE NATIONAL LABORATORY, USA.

CHAIRIED BY DEREK HAAS, UNIVERSITY OF TEXAS, USA; SHAYAN SHAHBAZI, ARGONNE NATIONAL LABORATORY, USA AND KEVIN TOLMAN, IDAHO NATIONAL LABORATORY, USA

TIME	order	Presentation Title and Speaker
8:00	1	**Log 376. OXIDATION STATE FAVORABILITY DUE TO CATION RADII IN MOLTEN SALT REACTOR FUEL SYSTEMS.** Patenaude, H.K.(1,P); Chamberlain, J.L.(1); Hatfield, C.A.J.(1); Parker, S.S.(1); Monreal, M.J.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
8:20	2	**Log 307. EFFECT OF TEMPERATURE AND REDOX POTENTIAL ON EQUILIBRIUM CONCENTRATIONS OF SELECT METALS IN SIMULATED MOLTEN CHLORIDE FAST REACTOR FUEL SALT.** Rood, N.(1,P); Harward, A.(2); Johnson, A.(1); Feistel, D.(1);Cernyar, M.(1); Unger, A.(s);Chatterjee,D.(2);Simpson, M.(1) (1) University of Utah. (2) TerraPower, LLC. (P) Presenting Author.
8:40	3	**Log 476. EXPLORING ACTINIDE MOLTEN SALTS WITH ATOMISTIC MODELING AND MACHINE LEARNING.** Nguyen, M.-T. (1,P). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
9:00	4	**Log 613. NOVEL APPROACH TO ELUCIDATING MAGNESIUM-POTASSIUM CHLORIDE VOLATILITY.** Harris, M.S. (1, P); Makovsky, K.A. (1); Seo, J. (1); Detrick, K.P. (1). (1) Pacific Northwest National Laboratory (P) Presenting Author.
9:20	5	**Log 628. A NOVEL METHOD FOR MEASURING PARTIAL VAPOR PRESSURES OF A MOLTEN SALT MIXTURE VIA COMBINED HORIZONTAL TRANSPIRATION AND TGA/DSC ANALYSIS.** Yankey, J.A. (1, P); Cernyar, M. (1); Leavitt, C. (1); Monreal M. (2); Jackson, M. (2); Holland, J. (3); Fitzhugh, R. (3); Simpson, M. (1). (1) The University of Utah. (2) Los Alamos National Laboratory. (3) Oak Ridge National Laboratory.
9:40		**Coffee break**

SESSION O CONTINUES AFTER COFFEE BREAK

10:00	6	**Log 261. MELT CRYSTALIZATION TOWARDS THE SEPARATION OF FISSION PRODUCT CESIUM FROM ALKALI SALTS.** Tolman, K. (1, P); del Rocio Rodriguez Laguna, M. (1). (1) Idaho National Laboratory. (P) Presenting Author.
10:20	7	**Log 336. A SCOPING STUDY FOR THE DEVELOPMENT OF A CORROSION CHEMISTRY DIGITAL TWIN SUPPORTING THE OPERATION OF MOLTEN FLUORIDE SALT SYSTEMS.** Clayton, B.(1, P); Xacur, J.(1); Pope, S.(1); Gentry, C.(1); Clarno, K.(1). (1) The University of Texas at Austin. (P) Presenting Author.
10:40	8	**Log 491. EFFECT OF MOISTURE ON CORROSION OF 316 STAINLESS STEEL IN MOLTEN NACL-MGCL2.** Park, T.(1, P); Yang, W.(1), Foster, R.I.(1), Choi, S.(1). (1) Seoul National University. (P) Presenting Author.
11:00	9	**Log 529. OXIDE ION SPECIFIC YSZ ELECTRODE FOR DETECTING OXYGEN IN MOLTEN SALT.** Felling, F.M.(1, 2, P); Unger, A. (2); Chatterjee, D. (2); Zhang, C. (2); (1) The University of Utah. (2) TerraPower LLC. (P) Presenting Author.
11:20	10	**Log 227. TESTING REFERENCE ELECTRODES IN FLINAZR MOLTEN SALT ENVIROMENT FOR NUCLEAR APPLICATIONS.** Krishnakumar, P. (1,P), Simpson, M. (1), Steppan, J. (1), Meaders, T. (1), Millet, B. (1). (1) University of Utah. (P) Presenting Author.
11:40-1		**Lunch break followed by afternoon sessions**

SESSION O (CONTINUED AFTER LUNCH)

1:00	11	**Log 247. LASER-INDUCED BREAKDOWN SPECTROSCOPY FOR REAL-TIME ELEMENTAL AND ISOTOPIC ANALYTICAL MEASUREMENTS FOR MOLTEN SALT REACTORS.** Andrews, H.B. (1,P); Kitzhaber, Z.B. (1); Orea, D. (1); McFarlane, J. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.
1:20	12	**Log 514. CHEMICAL ANALYSIS PLANS FOR ACU'S MOLTEN SALT RESEARCH REACTOR, THE NATURA RESOURCES MSR-1.** Pamplin, K.L.(1,P); for the NEXT Lab Collaboration. (1) Abilene Christian University. (P) Presenting Author.
1:40	13	**Log 224. HUMIDITY EFFECTS ON HF GENERATION FROM FLUORIDE MOLTEN SALT SPILLS IN FHR ACCIDENT SCENARIOS..** Pryor, N. (1,P); Clegg, M. (1); Simpson, M. (1); University of Utah. (P) Presenting Author.
2:00	14	**Log 528. IMPACT OF UNDESIRABLE OXIDE FORMATION ON VISCOSITY AND DENSITY OF CL-BASED MOLTEN SALTS.** Sujeong Lee (1,2,P); Taehoon Park (2); Wonseok Yang (3); Richard I. Foster (3); Sungyeol Choi (2,*) (1) Seoul National University Electric Power Research Institute (SEPRI), Seoul National University (2) Department of Nuclear Engineering, Seoul National University (3) Nuclear Research Institute for Future Technology and Policy, Seoul National University (P) Presenting Author (*) Corresponding Author
2:20	15	**Log 713. UNCERTAINTY IMPROVEMENT OF 22NA-BASED RADIOACTIVE TRACER DILUTION FOR DETERMINING TOTAL MASS OF PYROPROCESSING MOLTEN SALT SYSTEMS BY 154EU REMOVAL .** Guoping Cao (1, P), Magen E. Coleman (1), Brian Storms (1), Shelly Li (1). (P) Presenting Author. (1) Idaho National Laboratory
2:40	16	**Log 330. MONTE CARLO MODELLING OF ELECTROREFINING SALT MEASUREMENTS.** McKay, K. (1,2); Winkler, R. (1); Landsberger, S. (2); Charlton, W. S. (2). (1) Los Alamos National Laboratory. (2) The University of Texas at Austin
3:00	17	**Log 154. UNDERSTANDING FISSION PRODUCT BEHAVIOR OF MOLTEN SALT REACTORS WITH RADIOCHEMICAL TRANSPORT ANALYSIS.** Shahbazi, S. (1, P), Rollins, N. (1), Lund, A. (1), Seifert, L. (1), Martinson, S. (1), Beauvais, Z. (1), Romano, P. (1), Fei, T. (1). (1) Argonne National Laboratory.
3:30-5		**Poster Session**

Begin Thursday Program

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The organizers of MARC appreciate the sponsorship by Eckert & Ziegler Isotope Products for the Thursday morning coffee break and the afternoon coffee break.

SESSION R: ENVIRONMENTAL RADIOACTIVITY AND DOSIMETRY

ALL DAY THURSDAY IN BALLROOM 1

ORGANIZED AND CHAIRED BY BY GAUTHIER DEBLONDE, LAWRENCE LIVERMORE NATIONAL LABORATORY, USA, OLE CHRISTIAN LIND, NORWEGIAN UNIVERSITY OF LIFE SCIENCES, NORWAY AND NICOLE MARTINEZ, CLEMSON UNIVERSITY, USA; GEORGE STEINHAUSER, TU WEIN, AUSTRIA; ELIZABETH WIDOM, MIAMI UNIVERSITY, USA; KELLY MCHUGH, PACIFIC NORTHWEST NATIONAL LABORATORY, USA; PAUL MCGINNITY, IAEA MEL; AND ALEKSEI KONOPLEV, FUKUSHIMA UNIVERSITY, JAPAN

TIME	order	Presentation Title and Speaker
8:00	1	**Log 121. IMPACT OF ORGANIC AND BIOGENIC CHELATORS ON THE MIGRATION OF ACTINIDES.** Deblonde, G. J.-P. (1, P); Morrison, K. (1); Wasserman N. (1); Balboni E. (1); Kersting A. (1); Zavarin M. (1). (1) Lawrence Livemore National Laboratory
8:20	2	**Log 122. PLUTONIUM-240 ABUNDANCE IN REFRACTORY FALLOUT IN ENGLAND AND THE CHERNOBYL NUCLEAR EXPLOSION HYPOTHESIS.** Joyce, M. J. (1, P), Boxall, C. (1), Christl, M. (2), Collins-Price, P. (1), Gaca, P. (3), Gautschi, P. (2), Livens, F. (4), Madina, A. (1), Semple, K. T. (1), Warwick, P. (3), Wilbraham, R. (1). (1) Lancaster University. (2) ETH Zurich. (3) University of Southampton. (4) University of Manchester. (P) Presenting Author.
8:40	3	**Log 131. FALLOUT FROM TACTICAL NUCLEAR WEAPON DETONATIONS: IMPROVING MODELLING CAPABILITIES AND DECISION-MAKING PROCESSES IN NORWAY.** Lind, O.C.(1,P); Berge, E.(2); Brown, J.E.(3); Hosseini, A. (3); Klein, H. (2); Oughton, D.H. (1). (1) Norwegian University of Life Sciences. (2) Norwegian Meteorological Institute. (3) The Norwegian Radiation and Nuclear Safety Authority. (P) Presenting Author.
9:00	4	**Log 203. RADIOECOLOGY AFTER FUKUSHIMA: LESSONS LEARNED AND CHALLENGES FOR THE FUTURE.** Konoplev, A.V.(1, P); Wakiyama Y.(1); Golosov, V.N.(2); Nanba, K.(1). (1) Fukushima Unviersity. (2) Moscow State University. (P) Presenting Author.
9:20	5	**Log 208. IDENTIFICATION OF URANIUM AND PLUTONIUM ISOTOPIC COMPOSITION IN ENVIRONMENTAL SAMPLES WORLDWIDE.** Corcho Alvarado J.A. (1, P); Röllin S. (1); Sahli H. (1). (1) Spiez Laboratory, Switzerland. (P) Presenting Author.
9:40		**Coffee break**

SESSION R CONTINUES AFTER COFFEE BREAK

10:00	6	**Log 212. MODELLING SELENIUM SORPTION IN SOIL.** Kogiomtzidis, A.(1,P); Sassenberg, N.(1); Elgert, D.(1); Schmalz, T.(1); Walther, C.(1). (1) Leibniz University Hannover. (P) Presenting
10:20	7	**Log 339. ACTINIDES UNDER PRESSURE.** Albrecht, T.E.(1). (1) Colorado School of Mines (P) Presenting Author.
10:40	8	**Log 360. ACCELERATING DISSOLUTION RATE EXPERIMENTS OF PLUTONIUM OXIDE IN SIMULATED LUNG FLUID USING IN SILICO MODELS.** Lu S.E.(1,P), Klumpp J.(1), Anderson K.D.(1), Macsik Z.(1), Inglis J.(1), Harris J.(1), Steiner R.E.(1), LaMont S.P.(1). (1) Los Alamos National Laboratory.
11:00	9	**Log 397. 239+240PU AND 137CS IN SOUTHERN HEMISPHERE SOILS: DISTRIBUTION, SOURCES, APPLICATIONS, AND OUTLOOK.** Dicen, G. (P,1,2), Guillevic, F.(1), Gupta, S.(1), Kobler, J. (1), Chaboche, P.-A.(3), Meusburger, K.(4), Sabatier, P.(5), Evrard, O.(3), and Alewell, C(1). (1) University of Basel, Switzerland. (2) Department of Science and Technology-Philippine Nuclear Research Institute (DOST-PNRI),Philippines. (3)Laboratoire des Sciences du Climat et de l'Environnement (LSCE/IPSL) France. (4) Swiss Federal Institute for Forest Snow and Landscape Research WSL, Switzerland (5) Université Savoie Mont-Blanc, France. (P) Presenting Author.
11:20	10	**Log 410. RADIUM WITH A GRAIN OF SALT: RA EXTRACTION AND PRECONCENTRATION FROM OIL AND GAS LIQUID WASTE.** Coupannec, M. (1, P), Sudowe, R. (1). (1) Department of Environmental and Radiological Health Sciences, Colorado State University. (P) Presenting Author.
11:40-1		**Lunch break followed by afternoon sessions**

SESSION R (CONTINUED AFTER LUNCH)

1:00 (30 min)	11	**Log 447. HIGH SENSITIVITY MEASUREMENTS AT LANL IN SUPPORT OF IAEA'S INTERLABORATORY COMPARISONS OF ALPS-TREATED WATER FROM FUKUSHIMA DAIICHI.** Hinrichs, K.A. (1, P); Price, A.A. (1); Goldstein, S.J. (1); Christensen, K.L. (1); Gurganus, D.W. (1); Nunn, A.J. (1); Hrkach, S.M. (1); Amato, R.S. (1); Hudston, L.A. (1); Boswell, M. (1); Wende, A.M. (1); James, M.R.(1); LaMont, S.P. (1). (1) Los Alamos National Laboratory
1:30	12	**Log 494. USING PLUTONIUM ISOTOPES TO IDENTIFY FRENCH NUCLEAR TEST FALLOUT PERIOD (1966-1974): AN ADDITIONAL TIME-MARKER FOR SOUTH AMERICA.** Guillevic, F.(1,P); Gastineau, R.(2); Evrard, O.(3); Sabatier, P.(2); Chaboche, P.A.(3); Foucher, A.(3); Bardelle, A.(3); Achaga, R.(4); Ruiz-Fernandez, A.C.(5); Sanchez-Cabeza, J.A.(5); Tassano, M.(6); Cabrera, M.(6); Chalar, G.(7); Quincke, J.A.(8); Moreno-Allende, V.(9); Moernaut, J.(9); Corcho Alvarado J.A.(10); Röllin, S.(10); Sahli, H.(10); Kobler, J.(1); Dicen, G.(1); Alewell, C.(1). (1) University of Basel, Switzerland. (2) EDYTEM, Université Savoie Mont-Blanc, CNRS, France. (3) Laboratoire des Sciences du Climat et de l'Environnement (LSCE/IPSL), Université Paris-Saclay, France. (4) Centro de Investigaciones en Física e Ingeniería Del Centro de La Provincia de Buenos Aires (CIFICEN), Universidad Nacional Del Centro de La Pcia. de Bs. As. (UNCPBA), Argentina. (5) Unidad Académica Mazatlán, Instituto de Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México, Mexico. (6) Laboratorio de Radioquímica, Área de Radiofarmacia, Centro de Investigaciones Nucleares, Facultad de Ciencias, Universidad de la República, Uruguay. (7) Sección Limnología, Facultad de Ciencias, Instituto de Ecología y Ciencias Ambientales, Facultad de Ciencias, Universidad de la República, Montevideo, Uruguay. (8) Instituto Nacional de Investigación Agropecuaria, Uruguay. (9) Institute of Geology, University of Innsbruck, Innsbruck, Austria. (10) Spiez Laboratory, Federal Office for Civil Protection, Switzerland.
1:50	13	**Log 543. URANINITE DISSOLUTION POST INHALATION LEADS TO CREATION OF SUB-MICRON NEEDLE-LIKE U-P CRYSTALLITES.** Khng, Y. (1); Psyrillou, A. (1); Sarparanta, M. (1); Utsunomiya, S. (2); Vettese, G.F. (1); Parker, J. (3); Morris, K (4); Law, G.T.W. (1P). (1) Radiochemistry Unit, The University of Helsinki, Finland. (2) Department of Chemistry, Kyushu University, Japan. (3) Diamond Light Source, UK; (4) University of Manchester, UK.
2:10	14	**Log 574. USE OF BOVINE BONES AS A BIOMONITOR FOR THE RELEASE OF RADIONUCLIDES INTO THE ENVIRONMENT.** Sahovic, N.(1, P); Shozugawa, K.(2); Steinhauser, G.(1). (1) TU Wien. (2) University of Tokyo. (P) Presenting Author.
2:30	15	**Log 612. EXAMINATION OF URANIUM SORPTION, LOCALIZATION, AND PHYSIOLOGICAL RESPONSE IN MARINE MICROALGAE, ISOCHRYSIS GALBANA.** A.K. Gonzales(1,P); E.R. Fix(1); D. A. Montgomery(1); S.E. Donaher(2); P. van den Hurk(3); N.E. Martinez(1). (1) Department of Environmental Engineering and Earth Sciences, Clemson University, Anderson, SC, United States. (2) Department of Civil and Environmental Engineering, University of Tennessee-Knoxville, Knoxville, TN. (3) Department of Biological Sciences, Clemson University, Clemson, SC, United States.

2:50	16	**Log 625. DECONTAMINATION POTENTIAL OF RADIOACTIVELY CONTAMINATED WOUNDS WITH PURIFIED CLINOPTILOLITE-TUFF.** Welch, J. (1); Foster, M. (1); Sterba, J.H. (1, P); Nagl, D. (2); Tschegg, C. (2). (1) Center For Labelling and Isotopte Production, TRIGA Center Atominstitut, TU Wien, Vienna, Austria; (2) GLOCK Health, Science and Research GmbH; Deutsch-Wagram, Austria
3:10	17	**Log 671. STUDIES OF HYDROGELS FOR UPTAKE OF URANIUM ENVIRONMENTAL SAMPLES.** Tillman, C.L. (1,P); Bliznyuk, V.N. (1); DeVol, T.A. (1). (1) Clemson University (P) Presenting Author.
3:30-5		**Poster Session**

SESSION S: NUCLEAR DATA FOR NUCLEAR SECURITY

ALL DAY THURSDAY IN BALLROOM 2

ORGANIZED BY TASHI PARSONS-DAVIS, LIVERMORE NATIONAL LABORATORY, USA; AND TODD BREDEWEG, LOS ALAMOS NATIONAL LABORATORY, USA

TIME	order	Presentation Title and Speaker
8:00	1	**Log 644. DESIGN, EXECUTION, AND RESULTS OF CRITICALITY VALIDATION EXPERIMENTS.** Hutchinson, J. (1, P); Brain, P. (1); Bredeweg, T. (1); Cutler, T. (1); Goda, J. (1); Gooden, M. (1); Grosskopf, M. (1); Kleedtke, N. (1); Neudecker, D. (1); Little, R. (1); McKenzie, G. (1); Rising, M. (1); Thompson, N. (1); Weldon, R. (1); Whitman, N. (1). (1) Los Alamos National Laboratory
8:20	2	**Log 698. THE NATIONAL CRITICALITY EXPERIMENTS RESEARCH CENTER COUNTING LABORATORY: CURRENT CAPABILITIES AND RECENT RESEARCH.** Whitman, N.H. (1,P); Weldon, R.A. (1); Gooden, M.E. (1); Bredeweg, T.A. (1); Hutchinson, J.; (1) Los Alamos National Laboratory
8:40	3	**Log 665. ABSOLUTE INTEGRAL FISSION PRODUCT YIELDS AT NCERC.** Gooden, M.E.(1,P), Bredeweg, T.A.(1), Goda, J.M.(1), Hanson, S.(1), May, I.(1). (1) Los Alamos National Laboratory. (P) Presenting Author. **Log 717. FISSION PRODUCT YIELD MEASUREMENTS OF PU-239 IRRADIATED AT THE GEOLOGICAL SURVEY TRIGA REACTOR.** Linero, V.(1, P); Gooden, M.E.(2); Jackson, J.A.G.(1); Shafer, J.C.(1). (1) Colorado School of Mines. (2) Los Alamos National Laboratory. (P) Presenting Author.
9:00	4	**Log 486. EXAMINATION OF CUMULATIVE FISSION YIELDS FOR ACTINIDES IRRADIATED IN ENRICHED BORON CARBIDE SHIELDING FOR NUCLEAR FORENSICS.** Uhnak, NE(1); May, I(2) Pierson, B(1); Bredeweg, T(2) Zimmer, M(1) 1. Pacific Northwest National Laboratory 2. Las Alamos National Laboratory
9:20	5	**Coffee break**
9:40		**Log 484. U238 FISSION PRODUCT STUDIES USING THE MAUI D-T SOURCE USING LAPAKI-KOHANA.** Harke, J.T.(1,P); Garcia-Duarte, J. (1), Tamashiro, A.S.(1); Cameron, R.C.(1), Wright, D.M.(1); Harward, N.(1); (1) Lawrence Livermore National Laboratory.
10:00	6	**Log 548. INDIRECT DETERMINATION OF NEUTRON-CAPTURE CROSS-SECTIONS FOR REACTOR PHYSICS.** Lyons, S.M.(1,P), Bleuel, D.L.(2), Liddick, S.N.(3,4), Richard, A.L.(5), Spyrou, A.(3,4), Sweet, A.(2), Wiedeking, M.(6). (1) Pacific Northwest National Laboratory. (2) Lawrence Livermore National Laboratory (3) Facility for Rare Isotope Beams. (4) Michigan State University, (5) Ohio University. (6) Lawrence Berkeley National Laboratory.
10:20	7	**Log 401. TINY SAMPLES FOR NEUTRON TRANSMISSION EXPERIMENTS WITH THE DICER INSTRUMENT AT LANSCE.** Stamatopoulos A.(1,P), Koehler P.(1), Bond E.(2), Chasapoglou S.(1), Couture A.(1), DiGiovine B.(2), Essenmacher S.(1), Marenco A.(3), Mocko V.(4), Rusev G.(2), Ullmann J.(1), Vermeulen C.(2). (1) Physics Division, Los Alamos National Laboratory, USA. (2) Weapon Stockpile Modernization Division, Los Alamos National Laboratory, USA. (3) Actinide Material Processing & Power Division, Los Alamos National Laboratory, USA. (4) Chemistry Division, Los Alamos National Laboratory, USA.

10:40	8	**Log 214. RADIOCHEMICAL SEPARATIONS AND TARGET DEVELOPMENT FOR CROSS SECTION MEASUREMENTS AT THE NATIONAL IGNITION FACILITY.** Labb, S.A.(1,P); Despotopulos, J.D.(1); Kmak, K.N.(1); Shaughnessy, D.A.(1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
11:00		
11:30-1		**Lunch break followed by afternoon sessions**

SESSION S (CONTINUED)

1:00	9	**Log 433. ISOTOPE PRODUCTION CAPABILITIES AND GOLD RADIOTRACER DEVELOPMENT AT CAMS .** Wilkinson, J.T. (1, P); Tumey, S.J. (1); Moody, K.J. (2); Brown, T.A. (1); Gharibyan, N. (2). (1) Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory. (2) Nuclear and Chemical Sciences Division, Lawrence Livermore National Laboratory. (P) Presenting Author.
1:20	10	**Log 139. PRODUCTION OF AM-240.** Glennon, K.J.(1); Parsons-Davis, T.(1); Shusterman, J.A.(1); Wilkinson, J.T.(1); Gharibyan, N. (1,P). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
1:40	11	**Log 466. IMPROVING THE DECAY DATA FOR LONG-LIVED FISSION PRODUCTS.** Scielzo, N.D.(1,P); Kolos, K.(1); Iacob, V.(2); Hoff, D.E.(1); Hernandez, I.(3); Neupane, S.(1); Bencomo, M.(1); Champine, B.(1); Clark, J.A.(4); Gharibyan, N.(1); Hardy, J.C.(2); Hennessy, A.M.(5); Melconian, D.(2); Norman, E.B.(3); Orford, R.(6); Park, H.-I.(2); Ray, D.(7); Sammis, B.N.(1); Santiago-Gonzalez, D.(4); Savard, G.(4); Shusterman, J.(1); Stoyer, M.A.(1); Thomas, K.J.(1); Tonchev, A.P.(1); Valverde, A.(4); (1) Lawrence Livermore National Laboratory. (2) Texas A & M University. (3) University of California at Berkeley. (4) Argonne National Laboratory. (5) University of California Irvine. (6) Lawrence Berkeley National Laboratory. (7) University of Manitoba. (P) Presenting Author.
2:00	12	**Log 513. ASSESSMENT OF THE HALF-LIFE AND GAMMA-RAY BRANCHING RATIO OF 91-Y USING TRADITIONAL AND MULTI-MODAL COINCIDENCE MEASUREMENT TECHNIQUES.** Good, E.C. (1, P); Pierson,B.D. (1); Archambault, B.A. (1); Haney, M.M. (1); Herman, S. (1); Friese, J. (1); Douglas, M. (1); Metz, L. (1); Warzecha E. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
2:20	13	**Log 328. A NON-DESTRUCTIVE WAY TO MEASURE U-235 ENRICHMENT USING MÖSSBAUER SPECTROSCOPY.** de Morais, M.R.(1, P); Schwantes, J.M.(1). (1) The Pennsylvania State University. (P) Presenting Author.
2:40		
3:00		
3:30-5		**Poster Session**

SESSION T: BRIDGING THE GAP: INTEGRATED APPROACHES TO NUCLEAR FORENSICS R&D

ALL DAY THURSDAY IN BALLROOM 3

ORGANIZED BY SARAH FINKELDEI, UNIVERSITY OF CALIFORNIA, IRVINE, USA; JENNIFER LADD-LIVELY, OAK RIDGE NATIONAL LABORATORY, USA; DEBORAH PENCHOFF, UNIVERSITY OF CENTRAL FLORIDA, USA; ASHLEY SHIELDS, OAK RIDGE NATIONAL LABORATORY, USA; TYLER SPANO, OAK RIDGE NATIONAL LABORATORY, USA, SIMON MIDDLEBURGH, BANGOR UNIVERSITY, UK; AND MATTHEW GILBERT, AWE, UK.

TIME	order	Presentation Title and Speaker
8:10		**INTRODUCTION**
8:20	1	**Log 308. MACHINE LEARNING-ENHANCED SPECTRAL ANALYSIS OF PU OXALATE SURROGATE.** Borrero Negrón, J.I. (1,P); Braun, J.I. (2); Anderson, P.E. (1); Emrick, P.J.(3); Villa-Aleman, E.(4); Rao, A.P.(5); Hartig, K.C. (1) (1) Nuclear Engineering Program, University of Florida. (2) Department of Chemical and Materials Engineering, New Mexico State University. (3) COSMIAC at the University of New Mexico. (4) Global Security Directorate, Savannah River National Laboratory. (5) Space Vehicles Directorate, Air Force Research Laboratory. (P) Presenting Author.
8:40	2	**Log 263. INELASTIC NEUTRON SCATTERING TO PROBE WATER ENVIRONMENTS OF U(IV) AND TH(IV) OXALATE HYDRATES.** Barth B.S. (1, 2, P), Daemen L. (1), Peruski K.M. (1), Hunt R. (1), Chen S.A. (1), Burns P.C. (2), Miskowiec A. (1), Spano T.L. (1). (1) Oak Ridge National Laboratory. (2) The University of Notre Dame. (P) Presenting Author.
9:00	3	**Log 444. MORPHOLOGICAL COMPARISON OF URANYL OXALATE PRECIPITATES PRODUCED BY BATCH VERSUS CONTINUOUS PROCESSES.** Warzecha, E.J. (1, P); Chalifoux, A.M. (1); Tingey, J.M. (1); Hagen, A.R. (1); Nizinski, C.A. (1); (1) Pacific Northwest National Laboratory.
9:20	4	**Log 418. A SYSTEMATIC EXPLORATION OF URANIUM TRIOXIDE HYDROLYSIS PRODUCTS AND THEIR OPTICAL VIBRATIONAL SPECTRA.** Kaitschuck, N.M.(1); Barth, B.S.(2); Hutter, T.(1); Landsberger, S.(1); Miskowiec, A.(2); Spano, T.L.(2). (1) The University of Texas at Austin. (2) Oak Ridge National Laboratory
9:40 – 10:00		**Coffee break**

SESSION T RESUMES AFTER COFFEE BREAK

10:00	5	**Log 437. MULTIMODAL APPROACH TO UNDERSTANDING URANIUM OXIDES.** Miskowiec, A. J. (P, 1); Spano, T. (1), Shields, A. (1); Niedziela, J. (1); Isbill, S. (1); Hunt, R. (1); Barth, B. (1). (1) Oak Ridge National Laboratory
10:20	6	**Log 128. ACCELERATING DATA-DRIVEN PREDICTIVE CAPABILITIES IN RADIOCHEMISTRY THROUGH HIGH-PERFORMANCE COMPUTING.** Penchoff, D.A.(1,P); Peterson, C.C.(2); Valeev, E.F.(3); Harrison, R.J.(4). (1) University of Central Florida. (2) University of California, Los Angeles. (3) Virginia Tech. (4) Stony Brook University. (P) Presenting Author.
10:40	7	**Log 567. PLUTONIUM PROCESSING SIGNATURE RESEARCH AND DEVELOPMENT FOR NUCLEAR FORENSICS APPLICATIONS.** Clark, R.A. (1, P); Hagen, A.R.(1); Heller, R.D. (1); Lumetta, G.J.(2); Meier, D.E.(1); Muller, S.E.(1); Nizinski, C.A.(1); Sweet, L.E.(1); Tingey, J.M.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
11:00	8	**Log 355. CHALLENGES IN ANALYZING UNUSUAL PLUTONIUM MATERIALS: PUF4.** Colletti, L.P. (1, P); DiBlassi, N. A. (1). (1) Los Alamos National Laboratory. (P) Presenting Author.
11:20	9	**Log 351. CONTROLLED REACTION DYNAMICS OF BINARY HEXAFLUORIDES TO EXPLORE NEW CHEMICAL SIGNATURES.** Dorris, A.L. (1,P), McNamara, L.E. (1), Kelly, J.T. (1), Waldron, A.M. (1). 1 Savannah River National Laboratory
11:40-1:00		**LUNCH BREAK FOLLOWED BY AFTERNOON SESSIONS**
1:00	10	**Log 364. INVESTIGATION OF URANIUM AND IRON CONDENSATION FROM HIGH TEMPERATURE PLASMA CONDITIONS.** Weerakkody E. N. (1, P); Dai, Z. (1); Rodriguez, K. E. (1); Knight, K. B. (1); Koroglu, B (1); Balboni, E. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
1:20	11	**Log 490. DEVELOPMENT OF A FIELD PORTABLE COINCIDENCE SYSTEM AND TECHNIQUES FOR NUCLEAR FORENSICS .** (P) Garland, H.I. (1); Archambault , B.C. (1); Pierson, B.D. (1); Good, E.D. (1); Cheng, S. (1). (1) Pacific Northwest National Laboratory.
1:40	12	**Log 344. EXPLORING THE USE OF ELECTRON PARAMAGNETIC RESONANCE SPECTROSCOPY FOR NUCLEAR FORENSICS APPLICATIONS..** S. K. Scherrer (P); Forbes, T.Z. (1). (1) The University of Iowa
2:00	13	**Log 627. RADIOISOTOPE DATING OF NUCLEAR MATERIALS USING CRYOGENIC DECAY ENERGY SPECTROMETRY .** Wood R.(1, P); Kim G.B.(2); Jovanovic I.(1). (1) University of Michigan. (2) Lawrence Livermore National Laboratory. (P) Presenting Author.
2:20	14	**Log 132. THE POTENTIAL OF SOL-GEL CHEMISTRY TO TAILOR FUEL CANDIDATES FOR INTENTIONAL FORENSICS.** Finkeldei, S. C. (1, P); Granger-Jones (1); Proctor, J. (1); Lori, O. (1). (1) The Unviersity of California, Irvine. (P) Presenting Author.
2:40	15	**Log 371. ADAPTATIONS TO THE INTERNAL GELATION SOL-GEL PROCESS TO SUPPORT NUCLEAR FORENSICS APPLICATIONS.** Granger-Jones, J. (1, P); Keel, N. (1); Finkeldei, S. (1, 2, 3). (1) University of California, Irvine, Department of Chemistry. (2) University of California, Irvine, Department of Chemical and Biomolecular Engineering. (3) University of California, Irvine, Department of Materials Science and Engineering. (P) Presenting Author.
3:00		**Wrap-up**

SESSION U: INTERNATIONAL COLLABORATIONS, ADVANCEMENTS IN RADIOCHEMISTRY EDUCATION, AND ENHANCEMENTS IN LABORATORY EXPERTISE

ALL DAY THURSDAY IN BALLROOM 4

ORGANIZED BY CLEMENS WALTHER, UNIVERSITY OF HANNOVER, GERMANY; HEATHER DION, LOS ALAMOS NATIONAL LABORATORY, USA; ADAM STRATZ, NNSA / NA-213, USA; AND EDGARS BARONS, LATVIAN ENVIRONMENT, GEOLOGY AND METEOROLOGY CENTRE, LATVIA.

TIME	order	Presentation Title and Speaker
8:00	1	**Welcome and Introduction**
8:20	2	**Log 477. COMBINED STRONTIUM AND LEAD ISOTOPIC SIGNAURES IN ORE SAMPLES AS A NUCLEAR FORENSIC SIGNATURE: A PARTNERSHIP BETWEEN THE UNITED STATES AND SOUTH AFRICA.** Kupi, T. (1, P), Mathuthu, M. (1), Brennecka, G.A. (2) Inglis, J. (3) (1) Center for Applied Radiation Science and Technology (CARST), North-West University (Mafikeng campus), Mmabatho, 2735, Republic of South Africa. (2) Lawrence Livermore National Laboratory, USA. (3) Los Alamos National Laboratory, USA. (P) Presenting Author.
8:40	3	**Log 152. INTERNATIONAL COOPERATION OF THE NNC RK IN THE CONTEXT OF DEVELOPMENT OF COMPETENCIES IN THE FIELD OF NUCLEAR FORENSICS AND CREATING THE NNFL IN KAZAKHSTAN.** Syssaletin, A (1, P), Batyrbekov (1), E., Baklanova (1), Yu., Yermakov, V. (1), Marks, N. (2), Kips, R., Dallas, L. (3), Tompson, A. (2). (1) National Nuclear Center of the Republic of Kazakhstan, (2) Lawrence Livermore National Laboratory, (3) Oak Ridge National Laboratory
9:00	4	**Log 562. US-JAPAN NUCLEAR FORENSICS ANALYSIS TO IDENTIFY THE ORIGINS AND PROCESS HISTORY OF UOCS.** Shollenberger, Q.R(1,P); Kimura, Y.(2); Inglis, J.(3); Lindvall, R.(1); Nishiwaki, H. (2); Yamanaka, R. (2); Umino, Y. (2); Hosoi, M. (2); Marks, N (1); Kips, R. (1); Yamaguchi, T. (2); Sanborn, M. (3); Steiner, R. (3). (1) Lawrence Livermore National Laboratory. (2) Japan Atomic Energy Agency. (3) Los Alamos National Laboratory. (P) Presenting Author.
9:20	5	**Log 585. LEAD ISOTOPIC RATIOS AS A NUCLEAR FORENSIC SIGNATURE: A PARTNERSHIP BETWEEN THE UNITED STATES AND SOUTH AFRICA.** Mathuthu (1,P); Kupi, T. (1); Brennecka, G.A. (2); Inglis, J. (3). (1) Center for Applied Radiation Science and Technology (CARST), North-West University (Mafikeng campus), Mmabatho, 2735, Republic of South Africa. (2) Lawrence Livermore National Laboratory, USA. (3) Los Alamos National Laboratory, USA. (P) Presenting Author.
9:40		**Coffee break**

SESSION U CONTINUES AFTER COFFEE BREAK

10:00	6	**Log 129. CONSORTIUM FOR NUCLEAR FORENSICS INTERNATIONAL EFFORTS IN RADIOCHEMISTRY EDUCATION AND TRAINING .** Czerwinski, K.R. (1,P); Schwantes, J. (2) (1) Radiochemistry Program, University of Nevada, Las Vegas. (2) Penn State. (P) Presenting Author.
10:20	7	**Log 229. AN IMPROVEMENT OF A LABORATORY COURSE: A DESIGN-BASED RESEARCH APPROACH.** Fischer, C.(1,2, P); Friege, G.(2); Hanemann, P.(1); Walther, C.(1). (1) University of Hannover, Institute of Radioecology and Radiation Protection. (2) University of Hannover, Institute for Didactics of Mathematics and Physics. (P) Presenting Author.
10:40	8	**Log 341. DEVELOPMENT OF GRADUATE CERTIFICATE IN RADIOCHEMISTRY AT THE UNIVERSITY OF IOWA.** Forbes, T.Z. (1)(P); May, D. (1,2); Carter, K. P. (1); Celik, E (1). (1) The University of Iowa, (2) University of Iowa State Hygienic Laboratory
11:00	9	**Log 359. GLOBAL LESSONS: A COMPARATIVE ANALYSIS OF NUCLEAR GAMIFICATION'S IMPACT IN AMERICAN AND UK SCHOOLS.** Lu, S.E. (1, P); Hemming, S.D. (2); LaMont, S.P. (1). (1) Los Alamos National Laboratory. (2) University of Southampton. (P) Presenting Author.
11:20	10	**Log 386. ADVANCING NUCLEAR FORENSICS EDUCATION AND RESEARCH THROUGH THE CONSORTIUM FOR NUCLEAR FORENSICS (CNF).** Hartig, K.C. (1,P); Palmer, C. (2); Penchoff, D. (3); Baciak, J. (1); 1. Nuclear Engineering Program, University of Florida; 2. School of Nuclear Science and Engineering, Oregon State University; 3. Department of Chemistry, University of Central Florida; P. Presenting Author
11:40-1		**Lunch break followed by afternoon sessions**

SESSION U (CONTINUED AFTER LUNCH)

1:00	11	**Log 413. NUCLEAR FORENSICS TRANSFORMATIONAL INNOVATION AT PACIFIC NORTHWEST NATIONAL LABORATORY.** Douglas, M.(1, P); Metz, L.M.(1); Friese, J.I.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
1:15	12	**Log 425. A MINORITY SERVING INSTITUTION CONSORTIUM FOR ISOTOPE R&D AND PRODUCTION EDUCATION.** Goddard, B. (1, P); Rojas, J. (1); Phangikaroon, S. (1); Ndip, G. (2); Kalantarians, N. (3), Queern, S. (4); Phelps, C. (4). (1) Virginia Commonwealth University. (2) Virginia State University. (3) Virginia Union University. (4) Oak Ridge National Laboratory. (P) Presenting Author.
1:30	13	**Log 449. URANIUM SCIENCE AND TECHNOLOGY CENTER.** Ngelale, R. (1,P); Kapsimalis, R. (1); Hobby, J. (1); Dayman, K. (1); Birdwell, J.F. (2); Braatz, A.D. (2). (1) Oak Ridge National Laboratory; (2) Y-12 National Security Complex.
1:45	14	**Log 564. FROM RESEARCH TO PRODUCTION: SCALING UP ISOTOPE ACTIVITIES AND LESSONS LEARNED.** Tipping, T.N.(1,P); Nolting, D.D.(1); Lapka, J.L.(1); Haas, D.A.(1). (1) The Unviersity of Texas at Austin. (P) Presenting Author.
2:00	15	**Log 487. NEW OPPORTUNITIES FOR PLUTONIUM SCIENCE AND TECHNOLOGY (S&T) AT LOS ALAMOS NATIONAL LABORATORY: HARMONIA, THE PLUTONIUM SCIENCE LABORATORY (PLUS LAB).** Erickson, K. (1,P) (1) Los Alamos National Laboratory. (P) Presenting Author.
2:15	16	**Log 509. EDUCATION PROJECTS AT ITALIAN NATIONAL INSTITUTE OF NUCLEAR PHYSICS - INFN ABOUT NATURAL AND ARTIFICIAL RADIOACTIVITY .** Groppi, F. (1,2); Cagnetta, M.F. (2); Persico, E. (2); Manenti, S. (1,2); Colucci, M. (1,2). (1) LASA Laboratory, Physics Department of University of Milano, Milan, Italy; (2) LASA Laboratory, National Institute of Nuclear Physics - INFN, Milan, Italy
2:30	17	**Log 553. CHANGES IN RISK PERCPTION THROUGH HANDS-ON EXPERIMENTS IN SCHOOLS..** Schulz, W.(1,P); Schmidt-Mueller, N.(1); Seidl, R.(1); Walther, C.(1); (1) Leibniz University Hannover (P) Presenting Author.
2:45	18	**Log 739. ADVANCING GLOBAL COMPETENCE IN DIAGNOSTIC AND THERAPEUTIC RADIOISTOPES AND RADIOPHARMACEUTICALS THROUGH E-LEARNING COLLABORATION.** Dickman, P.T. (1,P); Qaim,S.M (1,2); Decristoforo, C (3);Park, C.T., (1) Horack, C.I (4); Ko, H.S. (5), Kim, H.J., (5). (1) World Council on Isotopes. (2) Forschungszentrum Jülich, Germany. (3) Medical University Innsbruck, Austria. (4) International Atomic Energy Agency. (5) Korean Atomic Energy Research Agency. (P) Presenting Author.
3:00	19	**Log 503. NUCLEAR NONPROLIFERATION WORKFORCE: KEEPING PACE IN A CHANGING WORLD.** Ladd-Lively, J. L. (1, P). (1) Oak Ridge National Laboratory
3:30-5		**Poster Session**

SESSION V: ANALYTICAL AND ELECTROCHEMICAL TECHNOLOGY DEVELOPMENT FOR PYROPROCESSING

ALL DAY THURSDAY IN PADDLER'S

ORGANIZED BY MICHAEL SIMPSON, UNIVERSITY OF UTAH USA; SUPATHORN PHONGIKAROON, VIRGINIA COMMONWEALTH UNIVERSITY, USA; AND SANG EUN BAE , KOREA ATOMIC ENERGY RESEARCH INSTITUTE, KOREA.

TIME	order	Presentation Title and Speaker
8:00	1	**Log 603. SPECTROELECTROCHEMISTRY OF MOLTEN SALT SYSTEMS: A GLOBAL ANALYSIS OF RESEARCH PROGRESS AND TRENDS .** Phongikaroon, S. (1, P) (1) Virginia Commonwealth University (P) Presenting Author.
8:20	2	**Log 537. LANTHANIDES QUANTIFICATION IN LIQUID LICL-KCL EUTECTIC USING LASER-INDUCED PLASMA AND ACOUSTIC SIGNALS.** Lee Y.(1); Kim H.(2); Park J.(2); Yang W.(3); Choi S.(2,3,4,P). (1) Device Solutions, Samsung Electronics, Republic of Korea. (2) Department of Nuclear Engineering, Seoul National University, Republic of Korea.(3) Nuclear Research Institute for Future Technology and Policy, Seoul National University, Republic of Korea.(4) Institute of Engineering Research, Seoul National University, Republic of Korea
8:40	3	**Log 703. IN SITU MONITORING OF LANTHANIDE REACTIONS WITH OXIDE SPECIES VIA COMBINED ABSORPTION SPECTROSCOPY AND ELECTROCHEMICAL METHODS.** LeCroy, G.S. (1, P); Yang, Q. (1); Cao, Guoping (1); Gakhar, R. (1). (1) Idaho National Laboratory (P) Presenting Author.
9:00	4	**Log 489. COLLINEAR, MULTI-PULSE LASER ABLATION FOR PASSIVATION INDUCTION AND SURFACE UNIFORMITY ON PYRPROCESSING MATERIALS..** Phongikaroon, S. (1); Milota, P. (1, 2,P); Andrews, H. (2); Breeden, W. (1). (1) Virginia Commonwealth Unviersity. (2) Oak Ridge National Laboratory. (P) Presenting Author.
9:20	5	**Log 412. ELECTROCHEMICAL TRANSIENT TECHNIQUE FOR THE MEASUREMENT OF HIGH CONCENTRATION OF METAL IONS IN HIGH TEMPERATURE MOLTEN SALTS.** Bae, S.-E.(1, P); Jung, C(1); Cha, H,-L(1). (1) Korea Atomic Energy Research Institute. (P) Presenting Author.
9:40		**Coffee break**

SESSION V CONTINUES AFTER COFFEE BREAK

10:00	6	**Log 231. THIN-LAYER ELECTROCHEMICAL SENSOR DEVELOPMENT FOR PYROPROCESSING UNITS.** Williams, T. (1,P); Mercado, E. (1); Rappleye, D. (1). (1) Brigham Young University. (P) Presenting Author
10:20	7	**Log 563. A COMPARATIVE NEURAL NETWORK BENCHMARK STUDY ON REVERSE QUANTIFYING ZIRCONIUM CONCENTRATION AND WEIGHT PERCENT IN A LICL-KCL MOLTEN SALT.** Smith, J.T. (1,P); Phongikaroon, S. (1); (1) Virginia Commonwealth University
10:40	8	**Log 232. DEVELOPMENT OF STABLE AND BUFFERED REFERENCE ELECTRODES FOR PLUTONIUM ELECTROREFINING IN BINARY MOLTEN CHLORIDE SALTS.** Mejia, C. (1, P); Rappleye, D. (1). (1) Brigham Young University. (P) Presenting Author.
11:00	9	**Log 606. MICROELECTRODE AND HYDRODYNAMIC VOLTAMETRIC ANALYSIS OF SAMARIUM IONS IN LICL -KCL EUTECTIC MOLTEN SALT.** Yang; W. (1,P); Choi, S. (2); Lee, N. (2); Jung, C. (2); Park, T.-H. (3,4); Choi, S. (1, 5, 6); Bae, S.-E. (2, 4). (1)Nuclear Research Institute for Future Technology and Policy, Seoul National University. (2)Nuclear Chemistry Technology Division, Korea Atomic Energy Research Institute. (3)Radioactive Waste Chemical Analysis Center, Korea Atomic Energy Research Institute. (4)Department of Nuclear Science and Technology, University of Science and Technology. (5)Department of Nuclear Engineering, Seoul National University. (6)Institute of Engineering Research, Seoul National University. (P) Presenting Author.
11:20	10	**Log 511. DEVELOPMENT AN INERT GAS FUSION ANALYTICAL METHOD FOR OXYGEN QUANTIFICATION IN CHORIDE AND FLUORIDE SALTS.** Gonzalez, M.(1,P); Simpson, M.F. (1). (1) The University of Utah. (P) Presenting Author.
11:40-1		**Lunch break followed by afternoon sessions**

SESSION V (CONTINUED)

1:00	11	**Log 317. OXYGEN ANALYSIS OF CHLORIDE SALTS - METHOD DEVELOPMENT AND STATISTICAL EVALUATION.** Charboneau, J.A.(1,P); Tolman, K.R.(1); (1) Idaho National Laboratory. (P) Presenting Author.
1:20	12	**Log 290. IN-SITU DENSITY MEASUREMENT FOR ENHANCED ELECTROREFINING MATERIAL ACCOUNTANCY.** Mercado, E.(1,P); Fuller, R.(1); Rappleye, D.(1). (1) Brigham Young University
1:40	13	**Log 252. MOLTEN SALT ELECTRODEPOSITION OF METALLIC ZIRCONIUM COATINGS ON URANIUM NITRIDE .** Chamberlain, J. (1,P); Patenaude, H. (1); Terricabras, A. (1); Batrice, R (1); Coons, T. (1); Monreal, M. (1). (1) Los Alamos National Laboratory, (P) Presenting Author.
2:00	14	**Log 296. PRELIMINARY ANALYSIS OF CHLORINATION AND REDUCTION INTEGRATED SINGLE PROCESS APPARATUS CAPABILITIES.** Vann, C (1, P); Klvacek, S (1); Larsen, M (1); Torrie, M (1); Mejia, C (1); Rappleye, D (1). (1) Brigham Young University. (P) Presenting Author.
2:20	15	**Log 301. AUTONOMOUS ELECTROREFINING PROCESS AND CHARACTERIZATION OF TIN AS A PLUTONIUM SURROGATE.** Ankrah, G. (1, P); Johnson, B. (1); Fuller, A. (1); Rodriguez, R. (1); Rappleye, D. (1) (1) Department of Chemical Engineering, Brigham Young University, Provo, UT 84602 USA
2:40	16	**Log 363. REMOVAL OF METAL BYPRODUCT FROM IN-SITU GENERATION OF ZIRCONIUM TETRACHLORIDE IN MOLTEN EUTECTIC LICL-KCL.** Eckley, C.A. (1,P); Camunez, A. (1); Fredrickson, G. (2); Yoo, T. (2); Simpson, M.F. (1). (1) The University of Utah, Department of Materials Science & Engineering. (2) Idaho National Laboratory. (P) Presenting Author.
3:00	17	**Log 361. INFLUENCE OF NICKEL AND COPPER ON THE ELECTROCHEMICAL BEHAVIOR OF TIN TO GUIDE THE AUTOMATION OF PLUTONIUM SURROGATE ELECTROREFINING.** Johnson, B. (1,P); Ankrah G. (1); Fuller, A. (1); Rodriguez, R. (1); Rappleye, D. (1). (1) Department of Chemical Engineering, Brigham Young University, Provo, Utah, USA
3:30-5		**Poster Session**

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SESSION W: ADVANCES IN THE CHEMISTRY AND MEASUREMENT OF FISSION AND ACTIVATION PRODUCTS FOR NATIONAL SECURITY, NONPROLIFERATION AND FORENSICS

FRIDAY MORNING IN BALLROOM 1

ORGANIZED AND CHAIRED BY STACI HERMAN, PACIFIC NORTHWEST NATIONAL LABORTORY, USA; GEORGIE HORGAN, AWE, UK; ALEX WEBERG, LOS ALAMON NATIONAL LABORATORY, USA AND NAREK GHARIBYAN, LAWRENCE LIVERMORE NATIONAL LABORATORY, USA.

TIME	order	Presentation Title and Speaker
8:00	1	**Log 689. IMPROVEMENTS IN TANDEM MASS SPECTROMETRY RADIONUCLIDE MEASUREMENTS FOR NUCLEAR FORENSICS.** Hobbs, K.P. (1,P); French, A.D.(1); Schlieder, T.S. (1); Scott, S.R. (1); Arnquist, I.J. (1); Beck, C.L. (1); Herman, S.M. (1). (1) Pacific Nortwest National Laboratory. (P) Presenting Author.
8:30	2	**Log 305. MICROFLUIDIC SEPARATION OF BULK RARE EARTH ELEMENTS FROM FISSION PRODUCTS.** Bence, J. (1, P); Glennon, K. (1); Valdovinos, H. (1); Cicchetti, N. (2); Parsons-Davis, T. (1); Gharibyan, N. (1); Shusterman, J. (1). (1) Lawrence Livermore National Laboratory. (2) University of Nevada, Las Vegas. (P) Presenting Author.
8:50	3	**Log 547. SEPARATIO OF SELECT ACTINIDES, FISSION, AND ACTIVATION PRODUCTS FROM A SINGLE SAMPLE WITH A MULTI EXTRACTION CHROMATOGRAPHY COLUMN.** Herman, S. (1, P); Arnold, E. (1); Lawler, B. (1); Beck, C. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
9:10	4	**Log 561. QUANTIFICATION OF CU-64 IN NUCLEAR DEBRIS SAMPLES.** Wren, M.S. (1), Weberg, A.B. (1), Salazar, A.A. (1, P), Klosterman, M.R. (1), Eaton, S.J. (1), Goehring, T.L. (1), Herman, S.M. (2), Pierson, B.D. (2), Warzecha, E.J. (2), Dale, G.E. (3), Fotiadis, N. (3), May, I. (1), Hanson, S.K. (1). (1) Nuclear and Radiochemistry (C-NR), Los Alamos National Laboratory, Los Alamos, NM. (2) Pacific Northwest National Laboratory, Richland, WA. (3) Accelerator Operations and Technology (AOT-DO), Los Alamos National Laboratory, Los Alamos, NM. (P) Presenting Author.
9:30	5	**Log 406. TODGA EXTRACTION OF COBALT (II) FROM AQUOEUS CHLORIDE MEDIA.** Wood, R. (1, P); Monte, P. (2); Salcedo, R. (2); Burton-Pye, B. (3); Francesconi, L. (2); Penchoff, D. (4); Wall, N. (1). (1) University of Florida. (2) Hunter College of the City University of New York. (3) Lehman College of the City University of New York. (4) University of Central Florida (P) Presenting Author.
9:50		**Coffee break**

SESSION W CONTINUES AFTER COFFEE BREAK

10:10	6	**Log 525. CHEMICAL SEPARATION AND MEASUREMENT OF PLATINUM ACTIVATION PRODUCTS.** Melinda S. Wren (1,P), Iain May (1), Elena Guardincerri (1), Melissa S. Boswell (1), Staci M. Herman (2), Evan J. Warzecha (2), Morgan M. Haney(2), Nikolaos Fotiades (1), Gregory E. Dale (1), Amanda A. Salazar (1), Alexander B. Weberg (1), Susan K. Hanson (1). (1) Los Alamos National Laboratory, Los Alamos, NM. (2) Pacific Northwest National Laboratory, Richland, WA. (P) Presenting Author.
10:30	7	**Log 309. MACHINE LEARNING WITHIN RADIOCHEMISTRY DECONFLICTION OF GAMMA PEAKS.** Wroe-Brown, J.(1,2,P); Lee-Brewin, L.(2); Shenton-Taylor, C.(2). (1) AWE Nuclear Security Technologies. (2) University of Surrey. (P) Presenting Author.
10:50	8	**Log 616. SEPARATION OF I-132 FROM FISSION PRODUCTS BY SOLVENT EXTRACTION FOR GAMMA RAY BRANCHING RATIO DETERMINATION.** Lapka, J. L (1, P); Fuller, R. (1); Haas, D. A. (1). (1) The Unviersity of Texas at Austin. (P) Presenting Author.
11:10	9	**Log 394. ASSESSING URANIUM COMPOSITIONS IN DEBRIS POST-RADIOLOGICAL INCIDENT.** Dagistan Sahin (1,P), H. Heather Chen-Mayer (1), Bryan Remley (1), Osman S. Celikten (1), Anil Gurgen (1). 1. National Institute of Standards and Technology
11:30	10	**Log 524. STABLE RUTHENIUM ISOTOPE RATIOS IN NUCLEAR REACTOR FUEL SAMPLES.** Patton, G.M. (1, P), Torrano, Z.A. (1), Salazar, A. (1), Miller, J. (1), Sanborn, M.E. (1), Hanson, S.K. (1). (1) Nuclear and Radiochemistry Group, Chemistry Division, Los Alamos National Laboratory

Session concludes at 11:50

SESSION X: MEASUREMENTS OF LOW-LEVEL RADIONUCLIDES IN THE ENVIRONMENT: ADVANCES IN CHEMISTRY, DETECTION SYSTEMS, CHARACTERIZATION, AND APPLICATIONS

FRIDAY MORNING IN BALLROOM 2

ORGANIZED AND CHAIRED BYCHRISTINE M JOHNSON, PACIFIC NORTHWEST NATIONAL LABORATORIES, USA; AND TODD HOSSBACH, PACIFIC NORTHWEST NATIONAL LABORATORIES, USA

TIME	order	Presentation Title and Speaker
8:00	1	**Log 278. EVALUATING RADIOLOGICAL IMPACTS OF TIN MINING IN THE JOS PLATEAU, NIGERIA: INNOVATIVE METHODOLOGY AND HEALTH RISK ASSESSMENTS.** Blenke, T. (1,P); Rohkamm, H. (1), Ademola, J. (2); Vahlbruch, C.(1); Walther, C. (1); (1) Institut of Radiecology and Radiation Protection - Leibniz University Hannover. (2) University of Ibadan
8:30	2	**Log 300. A NOVEL PROTEIN-BASED APPROACH FOR TRACE ACTINIDE EXTRACTION FROM ENVIRONMENTAL MATRICES.** Wasserman, N.L. (1, P); Deblonde, G. J-P. (1); Baransky, E.J. (1); Balboni, E. (3); Park, D. M. (1) Lawrence Livermore National Laboratory.
8:50	3	**Log 340. THE SURRI PROJECT: DEVELOPING NEW METHODS FOR RISK MANAGEMENT AND CRITICAL ELEMENT RECOVERY AT LEGACY URANIUM PRODUCTION SITES.** Cernik, M.(1); Burrell, F.(2); Sevcu, A.(1); Palusak, M.(1); Silvestri, D.(1); Hlavackova, V.(1); Nguyen, N.H.A.(1); Povedano Priego, C.(3); Merroun, M.(3); Petrangeli Papini, M.(4); Gomez-Gonzalez, M.(5); Cundy, A.B.(2,P). (1) Technical University of Liberec, Liberec, Czech Republic. (2) GAU-Radioanalytical, University of Southampton, UK. (3) Universidad de Granada, Granada, Spain. (4) Sapienza Universita di Roma, Rome, Italy. (5) Diamond Light Source Ltd., Didcot, Oxfordshire, UK. (P) Presenting Author.
9:10	4	**Log 408. REVISITING TRADITIONAL RADIOCHEMICAL SEPARATION TECHNIQUES: A DETAILED STUDY OF IRON HYDROXIDE AND NEODYNIUM OXALATE COPRECIPITATIONS .** Price, A.P.(1,P); Hinrichs, K.A.(1); Cook, D.L.(2); Hrkach, S.M.(1); Christensen, K.L.(1); Gurganus, D.W.(1); Nunn, A.J.(1); Amato, R.S.(1). (1) Los Alamos National Laboratory. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
9:30	5	**Log 541. ICPMS/MS: AN EXCELLENT METHOD FOR LOW-LEVEL ANALYSIS FOR ENVIRONMENTAL MONITORING .** Carrier, C. (1, P), Habibi, A. (1), Jaegler, H. (1), Varela, D.D. (1), Baconet, I. (1), Haloche, D. (1), Laconici, C. (1). (1) Nuclear safety and radioprotection authority (ASNR), SAME, LERCA, 781160 Le Vésinet. (P) Presenting Author.
9:50		**Coffee break**

SESSION X CONTINUES AFTER COFFEE BREAK

10:10	6	**Log 545. AN INNOVATIVE METHOD FOR RADIUM 226 QUANTIFICATION IN ENVIROMENTAL SAMPLES.** Azza Habibi (P), Danièle Dias Varela. Nuclear safety and radioprotection autority (ASNR)
10:30	7	**Log 550. EVIDENCE FOR BIOACCUMULATION OF PLUTONIUM AND NEPTUNIUM RADIONUCLIDES IN TURTLES, TORTOISES, AND SEA TURTLES FROM NUCLEAR TEST SITES.** Brown, A.N.(1,2,P); Price, A.A.(1); Inglis, J.D.(1); Fisher, W.S.(1); Conrad, C.(3). (1) Nuclear and Radiochemistry (C-NR) – Los Alamos National Laboratory. (2) University of South Carolina-School of Earth, Ocean and Environment. (3) Pacific Northwest National Laboratory.
10:50	8	**Log 580. 239−241,244PU AND 236U FALLOUT ISOTOPE RECORDS IN THE SOUTHERN HEMISPHERE – INTERPRETATION OF RELEASE AND ENVIRONMENTAL DISTRIBUTION.** Child, D. (1, P), Hotchkis, M. (1), Marx, S. (2), Saunders, K (1). Woodward, C. (1). (1) Australian Nuclear Science and Technology Organisation. (2) GeoQuest Research Centre, School of Earth, Atmospheric and Life Sciences, University of Wollongong. (P) Presenting Author.
11:10	9	**Log 645. ACTINIDE ACCELERATOR MASS SPECTROMETRY MEASUREMENT DEVELOPMENTS AT THE AUSTRALIAN NATIONAL UNIVERSITY.** Tims, S. (1,P); Fifield, L.K. (1); Pavetich, S. (1); Froehlich, M. (1); Medley, P. (1,2,3). (1) Australian National University. (2) Environmental Research Institute of the Supervising Scientist. (3) Queensland Health. (P) Presenting Author.
11:30	10	**Log 672. IMPROVING PLUTONIUM ISOTOPE RATIO MEASUREMENTS BY TIMS USING POLYMER FIBERS.** Folkes, K.A.(1,P); Bliznyuk, V.N.(2); Powell, B.A.(2); Husson, S.M.(1)(1) Department of Chemical and Biomolecular Engineering, Clemson University, Clemson, SC, USA (2) Department of Environmental Engineering and Earth Science, Clemson University, Clemson, SC, USA. (P) Presenting Author.

Session concludes at 11:50

SESSION Y: NEUTRON IMAGING TECHNOLOGIES AND APPLICATIONS

FRIDAY MORNING IN BALLROOM 3

ORGANIZED AND CHAIRED AARON CRAFT, IDAHO NATIONAL LABORATORY, USA; HASSINA BILHEUX, OAK RIDGE NATIONAL LABORATORY; PAVEL TRTIK, PAUL SCHERRER INSTITUTE, SWITZERLAND; BURKHARD SCHILLINGER, TECHNICAL UNIVERSITY, MUNICH, GERMANY; AND TAKENO SHINOHORA, J-PARC, JAPAN

TIME	order	Presentation Title and Speaker
8:00	1	**Log 246. NEUTRON AND X-RAY COMPUTED TOMOGRAPHY OF A NATURAL URANIUM TRISTRUCTURAL ISOTROPIC (TRISO) FUEL COMPACT.** Chuirazzi, W.C. (1,P); Zhang, Y. (2); Morankar, S.K. (1). (1) Idaho National Laboratory. (2) Oak Ridge National Laboratory.
8:30	2	**Log 348. CHARACTERIZATION OF CONCRETE SAMPLES USING THE UPGRADED CCD CAMERA NEUTRON IMAGING SYSTEM AT UFTR.** Sarceno, A.N. (1, P); Nimmagadda, J.K. (1); Mueller, T.K. (1); Ferraro, C. (1); Baciak, J.E. (1). (1) University of Florida; (P) Presenting Author.
8:50	3	**Log 501. A VERTICAL NEUTRON RADIOGRAPHY DEVICE FOR THIN LIQUIDS.** Schillinger, B (1,P), Craft, A (2), Sponar, S (3), Tkacz,P (1), Trunner,C (3) (1) Heinz Maier-Lebnitz Zentrum (FRM II), Technical University of Munich, Germany. (2) Idaho National Lab, USA. (3) Atominstitut Wien, Austria
9:10	4	**Log 581. USE OF NEUTRON IMAGING FOR ELEMENTAL COMPOSITION MAPPING IN METAL MATERIALS PRINTED BY ADDITIVE MANUFACTURING.** A.S. Tremsin(1,P), E. Eimer(2), S. Ganguly(2), T. Shinohara(3), K. Oikawa(3), W. Kockelmann(4), (1)University of California at Berkeley, Berkeley, CA 94720, USA; (2)Cranfield University, Cranfield, Bedfordshire MK43 0AL, England; (3)Japan Atomic Energy Agency, Naka-gun Ibaraki 319-1195, Japan; (4)STFC-Rutherford Appleton Laboratory, ISIS Facility, Harwell, OX11 0QX, UK
9:30	5	**Log 610. A HIGH-FLUX TRANSIENT NEUTRON BEAM FOR HIGH-SPEED NEUTRON RADIOGRAPHY UP TO 10,000 FRAMES PER SECOND.** Craft, A.E.(1,P); Pinho, A.d.S.S.(1); Gross, B.J.(1). (1) Idaho National Laboratory
9:50		**Coffee break and continues after break**

SESSION Y (CONTINUES AFTER COFFEE BREAK)

10:10	6	**Log 618. ENHANCING NEUTRON IMAGING CAPABILITIES AT LANSCE WITH TIMEPIX TECHNOLOGY: KEY INSIGHTS, ACHIEVEMENTS, AND FUTURE OUTLOOK.** Long, A.M.(1,P); Losko, A.S.(2); Hirsh, T.Y.(3); Wolfertz, A.(2); Jaeger, T.T(4); Vogel, S.C.(1). (1) Los Alamos National Laboratory, Los Alamos, NM 87545, USA. (2) Forschungs Neutronenquelle Heinz Maier Leibnitz, Garching, 85748, Germany. (3) Soreq Nuclear Research Center, Yavne, 81800, Israel. (4) Technical University Darmstadt, Darmstadt, 64289, Germany. (P) Presenting Author
10:30	7	**Log 728. A SHIELDED SAMPLE HOLDER ENABLING EXAMINATION OF IRRADIATED SAMPLES IN LOW-DOSE RATE ENVIRONMENTS.** Brian Gross (1); William Chuirazzi (1); Swapnil Morankar (1); Aaron Craft (1); Scott Moore (1). (1) Idaho National Laboratory
10:50	8	**Log 682. ONE-POT NEUTRON IMAGING OF TWO PHASE SYSTEMS: A METHODOLOGICAL STUDY.** Sercl, J (1, P), Lee, J. (2), Melcak, M. (1), Heyda, J. (1), Vopicka, O. (1), Trtik, P. (2). (1) Department of Physical Chemistry and Technology, Prague, (2) PSI Center for Neutron and Muon Sciences.
11:10	9	**Log 683. MULTICAMERA DETECTOR SYSTEM FOR HIGH RESOLUTION NEUTRON IMAGING.** Wissink, M.L. (1,P). (1) Phoenix LLC.
11:30	10	**Log 615. PERFORMANCE OF BORON BASED NEUTRON SCINTILLATOR SCREENS FOR NEUTRON IMAGING.** Craft, A.E.(1); Kilby,S.M.(1,P); Chuirazzi, W.C.(1); Schillinger, B.(2); Trunner, C.(3). (1) Idaho National Laboratory; (2) Heinz Maier-Leibnitz Zentrum (FRM II); (3) TU Wien. (P) Presenting Author.

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SESSION Z: ADVANCES IN ACTINIDE ANALYTICAL AND RADIONUCLEAR CHEMISTRY

FRIDAY MORNING IN BALLROOM 4

ORGANIZED AND CHAIRED BY LAV TANDON, LOS ALAMOS, NATIONAL LABORATORY, USA; ANGIE OLSON, LOS ALAMOS NATIONAL LABORATORY, USA; AND ZSUZSI MACSIK, LOS ALAMOS NATIONAL LABORATORY, USA

TIME	order	Presentation Title and Speaker
8:00	1	**Log 416. ISSUES AND METHOD IMPROVEMENTS TO THE AUTOMATED MODIFIED DAVIES AND GRAY METHOD FOR URANIUM ASSAY.** Ingman, L. (1, P); Attwood, S. (1); Firkin, S.J. (1); Shaw, T. (1). (1) AWE Nuclear Security Technologies. (P) Presenting Author.
8:30	2	**Log 225. HARNESSING THE STRUCTURAL AND SPECTROSCOPIC CHARACTERIZATION OF CALIFORNIUM(II) USING LANTHANIDE(II) ANALGOUES.** Wineinger, H.B.(1,P); Sperling, J.M.(1); Albrecht, T.E.(1). (1) Colorado School of Mines. (P) Presenting Author.
8:50	3	**Log 228. NON-DESTRUCTIVE DETERMINATION OF THE ISOTOPIC DISTRIBUTION OF ACTINIDE MATERIALS.** Adelman, S. L.(1, P); Carver, N. R.(1); Cava, A. J.(1); Jump, R. K. (1); Matonic, J. H.(1); Muscarella, K. B.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
9:10	4	**Log 294. OPTICAL SPECTROSCOPY FOR ANALYTICAL MEASUREMENTS AND REAL-TIME MONITORING IN SUPPORT OF THE CF-252 PROGRAM.** Sadergaski, L. R. (1,P); Andrews, H. B. (1); Cary, S. K.(1). (1) Oak Ridge National Laboratory. (P) Presenting Author.
9:30	5	**Log 325. PRODUCTION OF TAILORED ACTINIDE IONS FOR FUNDAMENTAL PHYSICS.** Stricker, J. (1, 2, P); Arndt, L. (1); Duellmann, Ch. E. (1, 2, 3); Renisch, D. (1,2); Velten, J. (1); TACTICa Collaboration (1, 2, 3). (1) Johannes Gutenberg-University Mainz, Germany. (2) Helmholtz Institute Mainz, Germany. (3) GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany. (P) Presenting Author.
9:50		**Coffee break**
10:10	6	**Log 337. EXPLORING ACTINIDE FLUORIDE PRODUCTION: IONOTHERMAL TREATMENT AND SPECTROSCOPIC AND MACROSCOPIC SIGNATURES OF UF_4 THERMAL DEGRADATION.** Ciprian, E. (1, P); Foley, B. J. (2); Spano, T. L. (3); Miskowiec, A. (3) Shehee, T. (2); Hixon, A. E. (1). (1) University of Notre Dame, Notre Dame. (2) Savannah River National Laboratory, Aiken. (3) Oak Ridge National Laboratory. (P) Presenting Author.
10:30	7	**Log 473. UNIQUE & CHALLENGING ASPECTS OF PLUTONIUM METAL STANDARDS EXCHANGE PROGRAM FOR ACTINIDE MEASUREMENTS.** Tandon L.(1,P); Kuhn K.(1); Dorn M.F.(1); Nachtsheim A.(1); Murph A.(1); Olson A.(1); Andrade S.(1). (1) Los Alamos National Laboratory. (P) Presentin Author.
10:50	8	**Log 512. DEVELOPMENT OF COMBUSTION ION CHROMATOGRAPHY METHOD FOR FLUORIDE AND CHLORIDE CHARACTERIZATION USING A MITSUBISHI AQF-2100H SYSTEM.** Brown, A. N. (1, P); Nolan, J. R. (1); Williams, S. N. (1); Martinez, P. T. (1); Tandon, L. (2); Olson, A. C. (1). (1) Los Alamos National Laboratory, Actinide Analytical Chemistry Group. (2) Los Alamos National Laboratory, Metal Production Group. (P) Presenting Author.
11:10	9	**Log 531. URANIUM ISOTOPIC RESULTS AFFECTED BY THERMAL IONIZATION MASS SPECTROMETRY METHOD CHANGES.** Maassen, J (P)(1); Butterfield N (1); Ottenfeld, C (1); Levesque, S (1); Kuhn, K (1); Tandon, L (1) Olson, A (1); (1) Los Alamos National Laboratory

11:30	10	**Log 608. ACCELERATING THE OPTIMIZATION OF F-ELEMENT SEPARATIONS VIA HIGH-THROUGHPUT EXPERIMENTATION AND MACHINE-LEARNING.** Augustine, L.J.(1,P); Wang, Y.(1); Lee, J.(1); Adelman, S.L.(1); Batista, E.R.(1); Kozimor, S.A.(1); Taylor, M.G.(1); Schrier, J.(2); Perez, D.(1); Yang, P.(1). (1) Los Alamos National Laboratory. (2) Fordham University. (P) Presenting Author.
11:50	11	**Log 653. NOVEL SAMPLE PREPARATION FOR ACTINIDE ANALYSIS USING FIB-SEM.** Wood, A. (1,P); Harrison, R. (1); Higginson, M. (2); Dunn, S. (2); Kaye, P. (2). (1) University of Manchester. (2) AWE Aldermaston. (P) Presenting Author.
12:10	12	**Log 692. PERIODIC TRENDS INCLUDING ACTINIDE REACTIVITY WITH NOVEL REACTION GASES USING ICP-MS/MS.** French, A.D. (1, P), Hobbs K.P. (1), Arnquist I.J. (1), Cox R.M (1), Scott S.R. (1) 1) Pacific Northwest National Laboratory

Session concludes at 12:30

POSTER SESSION A
MONDAY 10:00-11:30 AM

Sessions Included in poster session A (~60 posters total)
Track 2 and Track 3 Poster are emphasized in Poster Sessions A & B

- Track 2: Nuclear Security, Nonproliferation and Forensics
- Track 3: Environmental Radioactivity and Dosimetry

1 **Log 148. COMPARISON OF LINEAR ENERGY TRANSER SPECTRA OF THE NEUTRON GENERATOR AND THE SPACE RADIATION ENVIROMENT .** Mukhopadhyay,S. (1,P), Arnold ,L. (1), Mercado, A.(1), Aranda, R. (1), Hertel, N (1), Brittingham, J. (1) , Pooser, E.(1) , Dewji, S (1). (1) Georgia Institut of Technology.

2 **Log 151. SETUP AND CALIBRATION OF A NEW HIGH-COUNT-RATE GAMMA-RAY DETECTOR AND A LOW-ENERGY LOW-LEVEL GAMMA-RAY DETECTOR.** Veit, M.(1, P); Hammermann, M.(1); Hainz, D.(1); Musilek, A.(1); Steinhauser, G.(1). (1) TU Wien. (P) Presenting Author.

3 **Log 201. GAMMA-RAY EMITTING RADIONUCLIDES IN WATER SAMPLES: 30 YEARS OF SUCCESSFUL PARTICIPATION IN THE IRD/CNEN NATIONAL INTERCOMPARISON PROGRAM.** Gonzaga, C.L.(1,P); Bacchi, M.A.(1), Fernandes, E.A.N.(1). (1) Nuclear Energy Center for Agriculture, University of São Paulo. (P) Presenting Author.

4 **Log 205. DETECTION CAPABILITY OF ENVIRONMENTAL ALPHA SPECTROMETRY.** Semkow, T.M.(1,3,P); Faye S.A.(1,2); Burn A.G.(1,2); Torres M.A.(1); Haines D.K.(1). (1) New York State Department of Health. (2) State University of New York at Albany. (3) Retired. (P) Presenting Author.

5 **Log 218. TRANSFER EFFICIENCIES OF SURFACE-TO-SURFACE TRANSPORT OF MICRON-SIZED ACTINIDE SURROGATE PARTICLES.** Powell, A.R.(1,P); Bickley, A.A.(1). (1) Air Force Institute of Technology

6 **Log 233. RADIOANALYTICAL CHEMISTRY AND THE ANTHROPOCENE.** Cundy, A.B.(1,P); (1) GAU-Radioanalytical, University of Southampton, and the Anthropocene Working Group. (P) Presenting Author.

7 **Log 258. DEVELOPMENT OF NOVEL CHEMISTRY TECHNICS AND DOPING METHODS FOR ADDITION OF RADIONUCLIDES TO NIF CAPSULES.** Huynh, T.L. (1, P); Despotopulos, J.D. (1); Kmak, K.N. (1); Reynolds, R. (1); Braun, T. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

8 **Log 259. CHALLENGES IN PRE-DETONATION NUCLEAR FORENSIC ANALYSIS.** DiBlasi, N.A.(1); Hampton, S. (2, P); Worsham, E. (3); Galyean, A. (1) (1) Los Alamos National Laboratory. (2) National Nuclear Security Administration. (3) Lawrence Livermore National Laboratory. (P) Presenting Author.

9 **Log 262. DETERMINATION OF CHELATING AGENT CONCENTRATION FOR MINIMIZING RADIONUCLIDE MIGRATION IN RADIOACTIVE WASTE DISPOSAL FACILITIES.** Cha, G.Y.(1, P); Shin, H.(1); Son, J.(1); Yun, J.W.(1). (1) Korea Radioactive Waste Agency. (P) Presenting Author.

10 **Log 269. COMPARATIVE ANALYSIS OF STRONTIUM-90 AND CESIUM-137 IN FRESHWATER FISH NEAR THE FUKUSHIMA DAIICHI NUCLEAR POWER PLANT.** Stephenson, W.(1, P); Tazoe, H.(2); Akata, N.(2); Anderson, D.(2); Sudowe, R.(1). (1) Colorado State University, Fort Collins, United States . (2) Institute of Radiation Emergency Medicine, Hirosaki University, Japan. (P) Presenting Author.

11 **Log 273. USING NEUTRON ACTIVATION TO STUDY HEAVY METALS IN WATER SAMPLES OF LAKE MEAD.** Hunter, D., (1), Tran, T. (1, P); Nangeelil, K. (1), Yang F. (2), Dickenson, E. (3), Kelly, C. (4), Sun, Z. (1).(1) University of Nevada Las Vegas. (2) University of Nevada Reno. (3) Southern Nevada Water Authority. (4) Nevada Radon Education Program. (P) Presenting Author.

12 **Log 274. EVALUATING COSMIC-RAY BACKGROUNDS IN A HPGE SYSTEM: EXPERIMENTAL OBSERVATIONS AND GEANT4 SIMULATIONS.** Nangeelil K. (1); Tran, T. (1,P); Pak S. (2); Sun Z. (1). (1) University of Nevada Las Vegas. (2) Princeton University. (P) Presenting Author.

13 **Log 282. USING RADIOACTIVE MATERIAL TO EVALUATE DECONTAMINATION OF CONTAMINATED ELECTRONICS.** Heiden, Z. M. (1,P)); Kazi, Z. (2); Cree, W. (2); Mann, N.(3); Hines, C.C.(1); Green, A. (2); Vincent, C. (4). (1) Washington State University. (2) Defence Resaerch and Development Canada. (3) Idaho National Laboratory. (4) Irregular Warfare Technical Support Directorate. (P) Presenting Author.

14 **Log 283. QUANTIFICATION OF FE-55 IN MIXED RADIONUCLIDE SAMPLES.** Goodell, J.J. (1,P); Kolos, K. (1); Thomas, K. (1); Weiss, M.A. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

15 **Log 288. SMALL-SCALE PU ANION EXCHANGE CONTACT STUDIES FOR MODEL DEVELOPMENT.** Tardiff, E. (1,P); Kohlgruber, T. (1); Di Pietro, S. (1); Simpson, S. (1); Ferrier, M. (1); Childs, B. (1); Narain, S. (1); Scher, J. (1); Saito, H. (1); Banks, L. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

16 **Log 289. A FIELD INSTRUMENT FOR DETECTION OF TRACE ATMOSPHERIC GASES USING TWO-COLOR CAVITY RING-DOWN SPECTROSCOPY.** Robben, K.C.(1,P); Mccartt, A.D.(1); Jiang, J.(1); Ognibene, T.J.(1); (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

17 **Log 292. ANALYZING SIDEROPHORE-DRIVEN SORPTION MECHANISMS OF ACTINIDES ONTO MANGANESE OXIDES.** Hunley, L.(1); Moe, S.(1); Rodriguez, W.(1); Anagnostopoulos, V.(1, P). (1) University of Central Florida. (P) Presenting Author.

18 **Log 329. RADIOLOGICAL CONTROL OF THE TERRITORY THROUGH PERIODIC MEASUREMENTS OF WASTE WATER SEWAGE SLUDGE.** Cantaluppi, C.(1,P);Morelli, B. (1). (1) ICMATE-CNR Italy (P) Presenting Author.

19 **Log 332. USING ICP-MS/MS TO MEASURE SR-90 IN MILK AND DRINKING WATER.** Östman, M. (1, P); Lagerkvist, P. (1); Grange, M. (2); Mortensen, M. (2); Tovedal, A. (1); Dario, M. (3); Carlsson, M. (3); Liu, Y. (3); Eriksson, M. (3). (1) Swedish Defence Research Agency. (2) The Swedish Food Agency. (3) Linköping University. (P) Presenting Author.

20 **Log 333. QUANTIFYING ACTINIDE UPTAKE THROUGH HUMAN SKIN WITH LA-ICP-MS.** Jun, B.H.(1, P); Hull, G.A.(1); Harris, J.F. (1). (1) Los Alamos National Laboratory. (P) Presenting Author.

21 **Log 349. MEASUREMENT OF GROSS ALPHA AND GROSS BETA ACTIVITIES AT LOW ALPHA-TO-BETA ACTIVITY RATIOS- A METHOD FOR EMERGENCY PREPAREDNESS.** Norlin, K. (1, P); Ramebäck, H. (1); Tovedal, A. (1). (1) Swedish Defence Research Agency. (P) Presenting Author.

22 **Log 365. METAL ALLOY MICROPARTICLE TAGGING OF UO2 FUEL PELLETS FOR NUCLEAR FORENSICS.** Weerakkody, E. (1,P); Boro, J. (1); Amon, A. (1); Swift, A.J. (1); Long, O. (1); Kerlin, M. (1); Baker, A. (1); Marks, N.E. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author

23 **Log 375. A COMPARISON BETWEEN REAL TIME RADIOXENON(XE-127) AND GAS GRAB SAMPLE STABLE XENON(XE-126) MEASUREMENTS FROM THE PE1-A EXPERIMENT..** Liezers, M.(1, P); Alexander, T.R.(1); Carman, A.J.(1); Johnson, C.M.(1); Bodmer, M.A.(2); Foxe, M.P.(1); Fritz, B.G.(2); Roberts, B.(2); Tofaya, J.(2); Wright, A.A.(2); PE1 Experiment Team. (1) Pacific Northwest National Laboratory. (2) Sandia National Laboratory. (P) Presenting Author.

24 **Log 405. RADIOMETRIC AGING OF EASTERN BERING SEA SNOW CRABS.** Wood, Rachel (1, P); Fedewa, Erin (2); Wall, Donald (1); Wall, Nathalie (1). (1) Unviersity of Florida. (2) Resource Assessment and Conservation Engineering Division – Shellfish Assessment Program (RACE-SAP), National Oceanic and Atmospheric Association (NOAA). (P) Presenting Author.

25 **Log 409. FROM FALLOUT TO FLAVOR: CS-137 AND SR-90 ASSESSMENT OF FUKUSHIMA'S WINE.** Coupannec M. (1,P), Sudowe R.(1). (1) Department of Environmental and Radiological Health Sciences, Colorado State University

26 **Log 423. METHODS FOR PREPARATION OF LOW MASS CHLORINE SAMPLES FOR PLANETARY, SPACE, AND NUCLEAR FORENSIC APPLICATIONS.** Anderson, T.S.(1,P); Hidy, A.J. (1); Walker A.(1); Boyce, J.W.(2); (1) Lawrence Livermore National Laboratory (2) NASA Johnson Space Center (P) Presenting Author.

27 **Log 428. DEVELOPMENT OF SOLUTION COMBUSTION SYNTHESIS CAPABILITIES FOR INTENTIONAL NUCLEAR FORENSICS RESEARCH.** Roach, J.M. (1, P); Shields, A.E. (1); Miskowiec, A.(1); Spano, T.L. (1) (1) Oak Ridge National Laboratory. (P) Presenting Author.

28 **Log 432. DEVELOPING A REMOTE MONITORING AND CONTROL SYSTEM FOR A LOW-BACKGROUND LABORATORY.** Soenke, D.R.(1,2,P); Boswell, M.(2); Lamont, S. (1,2). (1) The University of New Mexico. (2) Los Alamos National Laboratory.

29 **Log 442. INVESTIGATION OF THE MIGRATION BEHAVIOUR OF I-125 USING A LABORATORY LYSIMETER WITH GERMAN REFERENCE SOIL.** Sassenberg, N. (1, P); Schmalz, T. (1); Riebe, B. (1); Walther, C. (1). (1) Leibniz University Hannover

30 **Log 443. TECHNETIUM IN SOIL: THE ROLE OF PLANT ROOTS AND WATER DYNAMICS .** Schmalz, T.(1,P); Sassenberg, N.(1); Riebe, B.(1); Walther C.(1). (1) Leibniz University Hannover. (P) Presenting Author.

31 **Log 446. ISOTOPIC COMPOSITIONS OF TITANIUM, IRON, AND NICKEL IN COMMERCIAL FUEL PELLETS – PROMISING CANDIDATE ELEMENTS FOR STABLE ISOTOPE TAGGING.** Render, J. (1, P); Shollenberger, Q.R. (1); Rolison, J. (1); Marks, N. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

32 **Log 450. RECOVERY OF ISOTOPIC TAGGANTS ALONG THE PRODUCTION PATHWAY OF URANIUM DIOXIDE.** Shollenberger, Q.R (1,P); Render, J. (1); Chalifoux, A. (2); Cisneros, M. (1); Marks, N. (1).McDonald, L. (3); Rolison, J.M. (1); (1) Lawrence Livermore National Laboratory. (2) Pacific Northwest National Laboratory. (3) Oregon State University. (P) Presenting Author.

33 **Log 468. DETERMINATION OF THE MOST EFFICIENT VOLUME OF DETECTION FOR VOLUMINOUS GAMMA-RAY SOURCES.** Kang, M.Y.(1,P); Kim, G.H.(1); Im, J.H.(1); Hwang, D.S.(1); Lee, J.H.(1); Kim, T.H.(1). (1) Korea Atomic Energy Research Institute (P) Presenting Author.

34 **Log 471. METHOD DEVELOPMENT: MEASUREMENT OF LABILE IRON AS AN OXIDATIVE STRESS MARKER FOR URANIUM IN RAT SAMPLES.** Sadi B., Imperial K.(P), Gadani K., Pirapakaran A., Ebadi Z., Jiang J.

35 **Log 478. ANALYZING EXPLOSIVELY GENERATED ROCK DAMAGE IMPACTS ON SUBSURFACE RADON AT BLUE CANYON DOME.** Johnson, C.M. (1,P); Lowrey, J.D. (1); Luo, X (1); Linneman, C.C. (1); Rockhold, M.L. (1); Knox, H.A. (1,2); Knox, J.M. (1,2); Roberts, B. (1); Shah, K. (1); Strickland, C. (1); Linneman, D. (1); Sprinkle, D.P. (1); St. Clair, J. (1); Johnson, T.C. (1); Sirota, D (1); Feldman, J.D. (1,2). (1) Pacific Northwest National Laboratory. (2) Sandia National Laboratories. (P) Presenting Author.

36 **Log 502. TRACING FRENCH NUCLEAR FALLOUT IN LAKE SEDIMENTS: A WEST-EAST TRANSECT FROM SOUTH AFRICA TO NEW ZEALAND.** Kobler, J.(1, P); Guillevic, F.(1); Gatineau, R.(2); Dicen, G.(1); Evrard, O.(3) ; Sabatier, P.(2); Corcho Alvarado, J.A.(4); Röllin, S.(4); Sahli, H.(4); Arnaud, F.(1); Paris, R.(5); Howarth, J.D.(6); Haberzettl, T.(7); Alewell, C.(1). (1) University of Basel, Switzerland. (2) EDYTEM, Université Savoie Mont-Blanc, CNRS, France. (3) Laboratoire des Sciences du Climat et de l'Environnement (LSCE/IPSL), Université Paris-Saclay, France. (4) Spiez Laboratory, Federal Office for Civil Protection, Switzerland. (5) Laboratoire Magmas et Volcans, OPGC, IRD, CNRS, Université Clermont Auvergne, France. (6) School of Geography, Environment and Earth Sciences, Victoria University of Wellington, New Zealand. (7) Geomorphology and Polar Research (GEOPOLAR), Institute of Geography, University of Bremen, Germany

37 **Log 539. EXPERIMENTAL APPROACH TO DETERMINE NATURALLY OCCURING RADIONUCLIDE FATE IN BIOHEAP LEACH MINING .** Vettese, G.F. (1P); Law, G.T.W. (1). (1) Radiochemistry Unit, The University of Helsinki.

38 **Log 540. CHEMISTRY OF INDIVIDUAL MICROMETER-SIZED "HOT-PARTICLES": HOW TO CHARACTERIZE ENVIRONMENTAL BEHAVIOUR.** Weissenborn, T. (P, 1); Leifermann, L. (1); Hanemann P. (1); Reinhard, S. (1); Schulz, W. (1); van Eerten, D. (1); Walther, C. (1). (1) University of Hanover, Institute of Radioecology and Radioprotection. (P) Presenting Author.

39 **Log 546. OPTIMIZATION OF POLONIUM SPONTANEOUS DEPOSITION.** Herman, S. (1, P), Cunningham, L. (1), Allen, C. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

40 **Log 557. DEVELOPMENT OF THE HARDWARE IMPROVEMENT AND SIGNAL PROCESSING TECHNOLOGY FOR LIQUID SCINTILLATOR COUNTER.** Jang, M.(1, P); Kim, H. C.(1); Lim, J.M.(1) (1) Environmental Radioactivity Assessment Team, Nuclear Emergency & Environmental Protection Division, Korea Atomic Energy Research Institute, Daejeon, Republic of Korea. (P) Presenting Author.

41 **Log 558. FEASIBILITY STUDY OF SCINTILLATOR-BASED DETECTION SYSTEM FOR NI-59 MEASUREMENT.** Seo, J.H.(1); Jang, M.(1, P); Kim, Y.H.(1); Lee, M.S.(1); Lim, J.M.(1). (1) Environmental Radioactivity Assessment Team, Nuclear Emergency & Environmental Protection Division, Korea Atomic Energy Research Institute, Daejeon, Republic of Korea. (P) Presenting Author.

42 **Log 559. EVALUATION OF RADIOCARBON IN AIR AND GROUNDWATER ON-SITE AT A RADIOACTIVE WASTE DISPOSAL FACILITY.** Ji, S.J.(1, P), Min,H.Y(1), Park,E.S(1), Beak,B.S(2);(1) Korea Radioactive Waste Agency,(2)Soosan Industries CO,.Ltd,(p)Presenting Author

43 **Log 568. ENVIRONMENTAL RADIOCHEMISTRY AT AWE, OUR CURRENT DISSOLUTION PROCESS, CHALLENGES AND FUTURE DEVELOPMENTS.** Hackett, R.W (1, P). (1) AWE Nuclear Security Technologies.

44 **Log 569. ENVIRONMENTAL AND RELEASE MONITORING AT TU WIEN'S TRIGA MK II REACTOR IN AN URBAN AREA.** Hainz, D. (1,P), Veit, M. (1), Musilek, A. (1). (1) TU Wien. (P) Presenting Author.

45 **Log 570. OPTIMIZATION OF ANALYTICAL PROCEDURE FOR THE RADIONUCLIDES OF ION EXCHANGE RESINS SAMPLES .** Kam, D.Y. (1, P), Kim, H.R. (1, 2), Lim, J.M (1). (1) Korea Atomic Energy Research Institute (2) Chung-Nam National University. (P) Presenting Author.

46 **Log 576. IMPROVING THE SUSTAINABILITY OF ENVIRONMENTAL MONITORING AND SAMPLING.** Wilson, G. (1, P) (1) AWE Nuclear Security Technologies

47 **Log 595. ANALYTICAL DATA MANAGEMENT SYSTEM FOR THE ENVIRONMENTAL RADIOACTIVITY MONITORING PROGRAM AROUND RESEARCH REACTOR IN KOREA.** Lim, J.M (1, P), Kim, W.Y. (1), Yoon, J.Y. (1), Gam, D.Y. (1), Jang, M. (1), (1) Korea Atomic Energy Research Institute. (P) Presenting Author.

48 **Log 596. METHOD VALIDATION OF SEQUENTIAL ANALYSIS FOR FE-55, NI-63, TC-99 IN THE GROUNDWATER SAMPLE.** Kim, H.R. (1,2), Gam, D.Y.(1), Yang, J.H.(2), Lim, J.M (1, P), (1) Korea Atomic Energy Research Institute, (2)Chung-Nam National University, (P) Presenting Author.

49 **Log 614. HIGH-GRADIENT MAGNETIC FILTRATION OF UO2 FROM WATER STREAMS.** Hunter, B.W.(1, P); Manard, B.(1); McFarlane, J.(1); Stanberry, J.(1); Szakas, S.(1); Tsouris, C.(1); Vick, M. (1); Wiechert, A.(1); Weber, C.F.(1). (1) Oak Ridge National Laboratory. (P) Brandon Hunter.

50 **Log 637. EFFICIENT TREATMENT OF COLORED WASTEWATER USING ELECTRON BEAM IRRADIATION: A SUSTAINABLE SOLUTION FOR THE TEXTILE INDUSTRY.** Hoang, S.M.T. (1,P). (1) Thu Dau Mot University. (P) Presenting Author.

51 **Log 649. GAMMA-RAY SELF ATTENUATION IN URANIUM ORE.** Martin, C. (1,2,P); Landsberger, S. (1). (1) University of Texas at Austin. (2) Los Alamos National Laboratory. (P) Presenting Author.

52 **Log 650. HEAVY METAL LEVELS IN URBAN DOMESTIC WATER: AN INAA STUDY REVEALS LOW CONCENTRATIONS BUT HIGHLIGHTS CHALLENGES IN CONTAMINATION ASSESSMENT.** Hoang, S.M.T. (1,P). (1) Thu Dau Mot University. (P) Presenting Author.

53 **Log 655. RADIONUCLIDE SEQUENTIAL SAMPLING OF SPRING 1974 AND 1977 THUNDERSTORMS.** Inn, K.G.W. (1, 2 Retd., 3, P); Kuroda, P.K. (3); Gavini, M. (3); Holloway, R. (3); Raines, W. (3); Flanders, M. (3); Harris, C. (3). (1) K&E Inn Ovations, Inc. (2) National Institute of Standards and Technology. (3) Formerly University of Arkansas.

54 **Log 656. RAPID ANALYSIS CS-137 IN SEAWATER USING LSC..** Kim, Y. H. (1, 2, P); Kim, H. C. (1, 2). (1) Korea Atomic Energy Research Institute. (2) University of Science and Technology. (P) Presenting Author.

55 **Log 658. A GAMMA-GAMMA COINCIDENCE SPECTROMETRY DETECTOR SYSTEM IN THE BOULBY UNDERGROUND LABORATORY.** Goodwin, M.A.(1,P); Galvin, G.,(1); Toth, C.(2); Davies, A.V.(3); Britton, R.(3); Paling, S.(2); Scovell, P.(2); Shoemark-Banks(2); Meehan, E.(2). (1) AWE Aldermaston. (2) STFC Boulby Underground Laboratory. (3) Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO). (P) Presenting Author.

56 **Log 659. ANALYSIS OF XE-127 TRACER MEASUREMENTS DURING A FIELD EXERCISE USING A NET COUNTS METHOD.** Goodwin, M.A.(1,P); Chester, D.L.(1); Galvin, G.,(1); Foxe, M.(2); Ely, J.(2); Eslinger, P.W.(2); Turley, R.S.(3); PE-1 Experimentation Team(4). (1) AWE Aldermaston. (2) Pacific Northwest National Laboratory. (3) Nevada National Security Sites (NNSS). (4) A multi-Physics Experiment for Low-Yield Nuclear Explosion Monitoring, LLNL-TR-864107. (P) Presenting Author.

57 **Log 670. EXTRACTION OF NEUTRON-GAMMA IRRADIATED DIFFUSION PUMP OILS.** Tillman, C.L. (1,P); McDonald, K.D. (2); Guin, T. (2); Folkert, J. (2); Bliznyuk, V.N. (1); DeVol, T.A. (1); Larsen, G.K. (2). (1) Clemson University (2) Savannah River National Laboratory (P) Presenting Author.

58 **Log 673. QUANTIFICATION OF HYDROGEN ISOTOPE EXCHANGE ON SELECT DIFFUSION PUMP OILS.** Allen, C.G.(1); Tillman, C.L. (1,P); Bliznyuk V.N. (1,2); Guin, T (3); Larsen G.K. (3); DeVol T.A. (1,2,). (1) Clemson University, (2) Center for Nuclear Environmental Engineering Sciences & Radioactive Waste Management, (3) Savannah River National Laboratory. (P) Presenting Author

59 **Log 675. OPTIMIZATION OF TRITIUM ANALYSIS FOR BIOASSAY SAMPLES AT LANL.** Chunko, R.N. (1, 2, P); Gooden, M.E. (1); Flanagan, D.C. (1); Sudowe, R. (2). (1) Los Alamos National Laboratory. (2) Colorado State University. (P) Presenting Author.

POSTER SESSION B
TUESDAY 10:00-11:30 AM

Sessions Included in poster session B (~60 posters total)
Track 2 and Track 3 Poster are emphasized in Poster Sessions A & B

- Track 2: Nuclear Security, Nonproliferation and Forensics
- Track 3: Environmental Radioactivity and Dosimetry

1 **Log 123. MODELING POTENTIAL IMPACTS OF NEW MEDICAL ISOTOPE FACILITIES ON GLOBAL XENON MONITORING.** Johnson, C.M. (1,P); Lowrey, J.D. (1); Eslinger, P. (1); Inman, J. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

2 **Log 138. ESTABLISHING METHODS FOR QUANTIFYING ANTIMONY FISSION PRODUCTS.** Weberg, A. B. (1,P), May I. (1); Hanson, S. K. (1); Selby, H. D. (1); Boswell, M.(1). (1) Chemistry, Nuclear and Radiochemistry (C-NR), Los Alamos National Laboratory, (P) Presenting Author.

3 **Log 144. ENHANCING NUCLEAR FORENSICS IN THE SOUTH CAUCASUS THROUGH KNOWLEDGE TRANSFER AND INTERNATIONAL COLLABORATION.** Dallas, L. (1); Belyaeva, O. (2, P); Movsisyan, N. (2); Pyuskyulyan, K. (3); LaMont, S. (4); Hudston, L. (4); Harris, M. N. (4); Mayer, K. (5). (1) National Nuclear Security Administration DOE, USA. (2) Center for Ecological-Noosphere Studies of NAS RA. (3) National Academy of Sciences of Armenia. (4) Los Alamos National Laboratory. (5) Joint Research Centre, European Commission, Karlsruhe, Germany. (P) Presenting Author.

4 **Log 145. MACHINE LEARNING-ENABLED TRIPLE PARTICLE DISCRIMINATION.** Duce, M. (P) (1); Walk, C. (1); Hill, A. C. (1); Erickson, A. (1). (1) Georgia Institute of Technology. (P) Prestenting Author.

5 **Log 147. 236U/238U IN URANIUM ORE CONCENTRATES.** Dorais, C. (1, P); Marks, N.E. (1); Brennecka, G.A. (1); Tumey, S.J. (1). (1) Lawrence Livermore National Laboratory.

6 **Log 240. DETECTION AND CHARACTERIZATION OF NUCLEAR MATERIAL PARTICLES USING LARGE GEOMETRY-SECONDARY ION MASS SPECTROMETRY .** Fauré, A.-L. (1,P); Cornaton, M. (1); Pointurier, P. (1) (1) CEA, DAM, DIF F-91297 Arpajon, France

7 **Log 242. DETECTING PERCENT LEVEL PU IN U-BEARING PARTICLES BY SEM-EDS FOR NUCLEAR SAFEGUARDS APPLICATIONS.** Wurth, K. (1, P), Tenner, T. (1), Naes, B. (1), Lamont, S. (1). (1) Los Alamos National Laboratory: C-NR. (P) Presenting Author.

8 **Log 244. DEVELOPMENTS IN THE USE OF GLOVE BAGS FOR CONVENTIONAL AND NUCLEAR FORENSIC ANALYSIS IN ACTIVE GLOVEBOXES.** Attwood, S. (1, P); Dunn, S. (1). (1) AWE Nuclear Security Technologies. (P) Presenting Author.

9 **Log 251. PROCESSING SIGNATURES OF URANIUM ORE CONCENTRATE PRECIPITATIONS.** Daniel E. Felton (1,P), Keith L. Ringley (1), Andrew J. Miskowiec (1), Tyler L. Spano (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.

10 **Log 286. PRECISE CHARACTERIZATION OF PLUTONIUM TRANSITION PROBABILITIES.** Medici, E.(1,P), Hartig, K.C.(1). (1) Nuclear Engineering Program, University of Florida (P) Presenting Author.

11 **Log 287. IMPLEMENTATION OF STACKED ENSEMBLE MACHINE LEARNING FOR DETECTION OF PLUTONIUM SURROGATE CONTAIMINATION IN SOIL.** Anderson, P.(1,P); Braun, J.I.(2); Borrero-Negron, J.(1); Rao, A. (3); Hartig, K.C.(1). (1) Nuclear Engineering Program, University of Florida; (2) Department of Chemical and Materials Engineering, New Mexico State University; (3) Space Vehicles Directorate, Air Force Research Laboratory, Kirtland AFB, NM; (P) Presenting Author.

12 **Log 297. SOL-GEL SYNTHESIS FOR NUCLEAR FORENSIC APPLICATIONS: INVESTIGATING METAL INCORPORATION AND ANNEALING EFFECTS.** Burns, A.D.(1,P); Rivera Rodriguez, W.I.(1); Anagnostopoulos, V.A.(1).(1) The University of Central Florida. (P) Presenting Author.

13 **Log 315. WHO WILL WATCH THE WATCHMEN (IN ORDER TO OPTIMIZE THEIR WATCHING)?.** Bakker, C. (1, P); Irvahn, J. (1); Mills, J.A. (1); Pulliam, R.M. (1); Willis, J.C. (1); Brigantic, R.T. (1). (1) Pacific Northwest National Laboratory.

14 **Log 345. RESULTS FROM THE FIFITH GALAXY SERPENT TABLETOP EXERCISE.** Borgardt, J. (1,P); Marks, N. (2); LaMont, S. (3). (1) Juniata College, Huntingdon, PA. (2) Los Alamos National Laboratory. (3) Lawrence Livermore National Laboratory (P) Presenting Author.

15 **Log 352. ISOTOPE RATIO MASS SPECTROMETRY WITHOUT CHROMATOGRAPHY USING A MICROPLASMA/ORBITRAP COMBINATION.** Goodwin, J.V.(1); Shresthra, S.(1); Manard, B.T.(2); Marcus, R.K. (1,P). (1) Clemson University. (2) Oak Ridge National Laboratory.

16 **Log 358. NEXT GENERATION PARTICLE MAPPING FOR ISOTOPIC CHEMICAL AND ELEMENTAL ANALYSIS (MICE).** Ticknor, B.W.(1, P); Manard, B.T.(1); Szakas, S. (1); Stanberry, J.(1); Andrews, H. (1); Spano, T.(1); Beiswenger, T (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.

17 **Log 368. SMART SPECTRAL MATCHING: MACHINE LEARNING NEW SPECTRAL SIGNATURES IN URANIUM MATERIALS.** Smith, R. W. (1); Spano; T. L. (1); McDonnell, M. (1); Miskowiec, A. (1); Niedziela, J. L. (1); Shields, A. E. (1, P) (1) Oak Ridge National Laboratory (P) Presenting Author

18 **Log 374. CHARACTERIZATION OF 4H-SILICON CARBIDE SCHOTTKY BARRIER DIODES FOR HIGH TEMPERATURE APPLICATIONS.** Giglio, D (1,P); Remy, J(1); Takahiro M. (2); Cao, L.R. (1). (1) The Ohio State University, Mechanical and Aerospace Engineering Department, Nuclear Engineering Program. (2) National Institute of Quantum Science and Technology, Japan.

19 **Log 383. EXPERIMENT SERIES WITH PRESSURE DRIVEN SUBSURFACE NOBLE GAS TRANSPORT AND ATMOSPHERIC RELEASES.** Foxe, M.(1,P); The PE1 Experiment Team(5). (1) Pacific Northwest National Laboratory. (2) https://doi.org/10.2172/2345984 . (P) Presenting Author.

20 **Log 384. TRANSPORT VARIABILITY OF XENON AND TRITIUM FOLLOWING AN UNDERGROUND EXPLOSIVELY DRIVEN RELEASE.** Foxe, M.(1,P); Liezers, M.(1); Alexander, T.(1); Boukhalfa, H.(2); Rahn, T.(2); Couture, A.(1); Rocco, N.(1); Lyons, S.(1); Rush, L.(1); Abbott, G.(3); Jenkins, A.(3); Goodwin, M.(3); Galvin, G.(3); Archambault, B.(1); Auld, G.(3); Beck, K.(1); Bertschinger, K.(1); Britt, C.(1); Fritz, B.(1); Glasgow, B.(1); Johnson, C.(1); Keillor, M.(1); Knox, J.(1); Moore, M.(1); Perea, R.(1); Roberts, B.(4); Sharma, M.(1); Slack, J.(1); Tafoya, J.(4); Taguba, C.(1); Terry, B.(4); Van Morris, A.(1); Whitehill, A.(1); Wright, A.(4); The PE1 Experiment Team(5). (1) Pacific Northwest National Laboratory. (2) Los Alamos National Laboratory. (3) Atomic Weapons Establishment. (4) Sandia National Laboratories. (5) https://doi.org/10.2172/2345984 . (P) Presenting Author.

21 **Log 387. AN EXPLORATION OF DATA FUSION TECHNIQUES APPLIED TO NUCLEAR FORENSICS TASKS.** Johnson, J. (1, P); McDonald, L. (2); Tasdizen, T. (1) - (1) University of Utah, Scientific Computing and Imaging Institute (SCI). (2) University of Utah, Department of Civil and Environmental Engineering. (P) Presenting Author

22 **Log 388. MORPHOLOGICAL SIGNATURES OF U-OXIDES PRODUCED FROM THE HIGH-TEMPERATURE FIRING OF U-METALS. .** Gibb, L.D. (1,P); Chung, B.W. (2); McDonald, L.W., IV (3); Simpson, M.F. (1). (1) The University of Utah. (2) Lawerence Livermore National Lab. (3) Oregon State University. (P) Presenting Author.

23 **Log 390. NUTIMS NX - UPDATED MULTI-IC SYSTEM.** Roberts, D.J. (1,P). (1) Nu Instruments. (P) Presenting Author

24 **Log 395. MEASURING THE THERMAL NEUTRON CROSS SECTION FOR THE 40CA(N,A)37AR REACTION.** Shah, K.A. (1, P); Lapka, J.L. (1); Haas, D.A. (1). (1) The University of Texas at Austin. (P) Presenting Author.

25 **Log 426. DEVELOPMENT OF FISSION FRAGMENT DETECTION SIMULATION.** Shire, J. (1, P), Walker, L. (1), Olinger, J. (1), Jaffe, J. (1), Chemey, A. (1). (1) Oregon State University. (P) Presenting Author.

26 **Log 427. INVESTIGATING URANIUM HEXAFLUORIDE HYDROLYSIS IN SUPERSONIC JETS.** Waldron, A.M. (1,P); McNamara, L.E. (1); Dorris, A. (1); Kelly, J.T. (1). (1) Savannah River National Laboratory, (P) Presenting Author.

27 **Log 435. USING LUMINESCENT TRACERS TO UNDERSTAND NUCLEAR MATERIAL FATE AND TRANSPORT.** Carman, A.J.(1, P); Casella, A.J.(1); Nicholas, A.D.(1); Williams, A.N.(1); Hubbard, L.R.(1); Buck, E.C.(1); Muller, S.E.(1); Henson, N.J.(1); Alcantar-Anguiano, S.(1); Barnett, D.S.(1); Cunningham, H.S.(1); Bautista A.(1); DeSmet, M.M.(1); Kremer, E.(1); Davis, D.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author

28 **Log 439. CHARACTERIZATION OF BROAD MACHINE LEARNING APPROACHES FOR GENERAL USE, QUANTITATIVE MORPHOLOGICAL ANALYSIS.** Ly, C. (1, P); Johnson, J. (1,2); Yaros, J.L. (1); Nizinski, C.A. (1); Tasdizen, T. (2); Hagen, A.R. (1); (1) Pacific Northwest National Laboratory. (2) University of Utah, Scientific Computing and Imaging Institute (SCI).

29 **Log 440. EFFECT OF PRECIPITATION BATCH SIZE ON THE MORPHOLOGICAL PROPERTIES OF VARIOUS ACTINIDE OXALATES.** Nizinski, C.A. (1, P); Chalifoux, A.M. (1); Warzecha, E.J. (1); Hagen, A.R. (1); Hanson, A.B. (2); Mathies, K. (2); Sentz, K. (2); Heller, F.D. (1); Clark, R.C. (1); Meier, D.E. (1); Lumetta, G.J. (1); Tingey, J.M. (1) (1) Pacific Northwest National Laboratory. (2) Los Alamos National Laboratory.

30 **Log 451. DENSITY FUNCTIONAL THEORY INVESTIGATIONS OF NI- AND FE-TAGGED UO2.** Isbill, S.B.(1,P); Shields, A.S.(1). (1) Oak Ridge National Laboratory. (P) Presenting Author.

31 **Log 455. INVESTIGATION OF THE EFFECTIVENESS OF OPTICAL COLOR MEASUREMENT FOR SCREENING UOC SAMPLES IN NUCLEAR FORENSICS ANALYSIS.** Kimura, Y.(1, P); Shollenberger, Q.R.(2); Matsumoto, T.(1); Lindvall, R.(2); Hoffman, D.(2); Yamaguchi, T.(1). (1) Japan Atomic Energy Agency. (2) Lawrence Livermore National Laboratory. (P) Presenting Author.

32 **Log 459. SINGLE ISOTOPE VERSUS MULTIPLE ISOTOPE SOURCE-LOCATION MODELS.** Eslinger, P.W.(1,P); Sarathi, R.S.(1); Schrom, B.T.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

33 **Log 460. RADIONUCLIDE SIGNATURES FROM COMPLEX RELEASES OF FISSION PRODUCTS.** Adhikari, P. (1, P); Gordon, E.M. (1); Lapka, J.L. (1); Haas, D.A.(1). (1) The Unviersity of Texas at Austin. (P) Presenting Author.

34 **Log 461. DETECTING XE-127 AS AN ATMOSPHERIC TRACER.** Eslinger, P.W. (1, P); Goodwin, M.A. (2); Sarathi, R.S. (1); Warren, G.A. (1); Schrom, B. T. (1); Foxe, M. P. (1); Chester, D. (2); Galvin, G. (2); Turley, L. (3); Hardy, D. (3); PE-1 Experiment Team (4). (1) Pacific Northwest National Laboratory. (2) Atomic Weapons Establishment (AWE), UK. (3) Nevada National Security Sites. (4) doi:10.2172/2345984. (P) Presenting Author.

35 **Log 472. DATING PLUTONIUM DIOXIDE MICROPARTICLES BY MICRO-RAMAN SPECTROMETRY.** Fabien Pointurier (1, P). (1) CEA/DAM.

36 **Log 483. USE OF XE-127 IN A TRACER EXPERIMENT FOR MODEL VALIDATION.** Ely, J. (1, P); Abromeit, B. (1); Hallen, T. (1); Harper, W. (1); Hayes, J. (1); Sharma, M. (1); Suarez, R. (1); PE-1 Experiment Team (2). (1) Pacific Northwest National Laboratory. (2) doi:10.2172/2345984. (P) Presenting Author.

37 **Log 498. MEDDLING WITH METAL MEDLEYS.** Luitjohan, K. E. (1, P); Thrun, M. M.(1); (1) Los Alamos National Laboratory. (P) Presenting Author.

38 **Log 504. TAG, YOU'RE IT: DEVELOPING A METHOD TO ISOLATE CHROMIUM FROM URANIUM-RICH MATERIALS AND IMPLICATIONS FOR CHROMIUM AS AN ISOTOPIC TAGGANT.** Baransky, E.J. (1, P); Render, J. (1); Rolison, J.M. (1). (1) Nuclear and Chemical Sciences Division, Lawrence Livermore National Laboratory, USA.

39 **Log 507. PRODUCTION OF GASEOUS RADIOTRACERS WITH A CRYOGENIC IRRADIATION FACILITY.** Hudson, C.C.(1, P); Slack, J.L.(2); Johnson, C.M.(2); Seifert, C.E.(2); Haas, D.A.(1). (1) The University of Texas at Austin. (2) Pacific Northwest National Laboratories (P) Presenting Author

40 **Log 518. REACTIVITY PENALTY OF INCORPORATING TAGGANT ELEMENTS INTO FUEL.** Ayaz-Maierhafer, B.(1, P); Osborn, J.M.(1). (1) Sandia National Laboratories. (P) Presenting Author.

41 **Log 520. MODEL PREDICTIONS OF TAGGED FUEL TRANSMUTATIONS.** Lutz, E.C.(1, P); Salazar III, A. (1); Osborn, J.M.(1); Wilson, B.(2). (1) Sandia National Laboratories. (2) Oak Ridge National Laboratory. (P) Presenting Author.

42 **Log 526. RADIOCHRONOMETRIC DISCORDANCE IN HIGHLY ENRICHED CAST URANIUM METAL.** Chen, C.Y. (1, P); Engel, J.R. (2); Gaffney, A.M. (1); Denton, J.S. (2); Kayzar-Boggs, T.M. (2); Rice, N.T. (2); Sharp, M. (1); Wende, A.M. (2). (1) Lawrence Livermore National Laboratory, USA. (2) Los Alamos National Laboratory, USA.

43 **Log 533. IMPACT OF SAMPLE PREPARATION METHODOLOGIES ON QUANTITATIVE PARTICLE MORPHOLOGY ANALYSIS.** Ditcham, T (1,P), Keegan, E (1), Holland, J (1), McDonald IV, LW (2) (1) Australian Nuclear Science and Technology Organisation (2) Oregon State University

44 **Log 535. CHARACTERIZATION OF OPTICAL DETECTED MAGNETIC RESONANCE OF NITROGEN-VACANCY ENSEMBLES IN DIAMOND.** Shoen, L.(1, P); Remy, J.(1); Cao, L.R. (1). (1) The Ohio State University. (P) Presenting Author.

45 **Log 551. EXPERIMENTAL CHARACTERIZATION OF AN IN-CORE FAST NEUTRON IRRADIATION FACILITY AT A TRIGA REACTOR.** Castro, S.T.(1, P); De Luna, B.A.(2); Lapka, J.L.(1); Haas, D.A.(1). (1) The Unviersity of Texas at Austin. (2) Sandia NationalLaboratories. (P) Presenting Author.

46 **Log 565. COMPARING MC-ICP-MS AND ALPHA SPECTROMETRY 234U-230TH RADIOCHRONOMETRY UNCERTAINTY BUDGETS.** Wende, A.M. (1,P); Macsik, Z. (1); Flanagan, D.C. (1); Lamont, S.P. (1); Steiner, R.E. (1). (1) Los Alamos National Laboratory. (P) Presenting Author.

47 **Log 575. ISOTOPICALLY PERTURBED TAGGANT SYNTHESIS AS A NUCLEAR FORENSICS TOOL.** Shultz-Johnson, L. (1, P); Koh, K. (1); Bowden, S. (1); Harrell, M. (1); Reamer, K. (1); Bronikowski, M. (1); Fitzgerald, C (1); Barrett, C. (1); Wellons, M. (1); Gage, G. (1). (1) Savannah River National Laboratory.

48 **Log 583. ADVANCEMENTS IN SINGLE PARTICLE MASS SPECTROMETRY (SPMS) ANALYSIS FOR NUCLEAR FORENSICS.** Omana, M.A. (1, P); Wiemann, D.K. (1); Settecerri, T. (1); Hammond, A.L. (1). (1) Sandia National Laboratories. (P) Presenting Author.

49 **Log 584. NAUTILUS AT THE UNIVERSITY OF NOTRE DAME.** Hixon, A.E.(1,P); Collon, P. (1); Bailey, T. (1); Robertson, D. (1); Stech, E. (1). (1) University of Notre Dame. (P) Presenting Author.

50 **Log 588. UNVEILING UNKNOWN TAGGANTS IN NUCLEAR FUELS: MACHINE LEARNING-ASSISTED DETECTION USING EDS AND EPMA.** Boro, J.B. (1); Marks, N.E. (1). (1) Lawrence Livermore National Laboratory

51 **Log 589. A GLOWING STUDY: SURFACE TAGGING CLADDINGS USING PHOTOLUMINESCENT PARTICLES.** Hawk, C.L. (1,P); O'Brien, L.B. (1); Bloom, R.A. (1); Gandara, N.J. (1); Musico, B.L. (1); Fetrow, T.V. (1); Smith, J.P.(1); Thrun, M.M.(1); Strohmeyer, M.J. (1); Condon, N.J. (2); Abdel-Rahman, M.(2); Roach, J. (3). (1) Los Alamos National Laboratory. (2) Argonne National Laboratory. (3) Oak Ridge National Laboratory (P) Presenting Author.

52 **Log 597. A PORTABLE, LOW-POWER ELECTROSTATIC PRECIPITION-BASED AEROSOL MONITOR FOR NUCLEAR EXPLOSION MONITORING.** Keillor, M.E.(1); Beck, K.A.(1); Emmons, S.B.(1); Johnson, J.C.(1); Moore, M.E.(1,P); Kasparek, D.M.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

53 **Log 605. DETERMINATION OF ZN AND GA ISOTOPES IN FISSION PRODUCT MIXTURES.** White, J. M. (1, P); Wren, M. S. (1); May, I. (1); Weberg, A. B. (1); Hanson, S. K. (1). (1) Los Alamos National Laboratory. (P) Presenting Author.

54 **Log 622. NEW IN-LINE MONITOR OF URANIUM OR PLUTONIUM IN NUCLEAR FUEL FACILITY PROCESS STREAMS.** McKisson, J.E.(1,P); McKisson, J (1); Ratner, R.T.(2). (1) McKisson Integrated Systems, LLC. (2) Nuclear Fuel Services, Inc.

55 **Log 630. NOVEL TOOLS FOR INTERPRETATION OF URANIUM DISEQUILIBRIUM IN COMPLEX FUEL CYCLE MATERIALS.** Dunne, J.A.(1, P); Higginson, M.A.(1); Gilligan, C.R.D.(1); Cross, S.(1). (1) AWE.

56 **Log 633. EVALUATION OF MACHINE LEARNING ALGORITHMS FOR NUCLEAR MONITORING APPLICTIONS.** Pace, J.(1); Biegalski, S.R.(1,P)

57 **Log 640. SOURCE TERM ANALYSIS OF 127XE FROM SURFACE AND SUBSURFACE TRACER TRANSPORT EXPERIMENTS OF THE PE1 SERIES.** Slack, J.L.(1); Emmons, S.B.(1); Johnson, C.M.(1,P); Britt, C.G.(1); Keillor, M.E.(1); Knox, J.M.(1); Moore, M.E.(1); Morris, A.V.(1); Taguba, C.T.(1); PE1 Experiment Team(2). (1) Pacific Northwest National Laboratory. (2) See Authorship list on Experiment Report LLNL-TR-864107. (P) Presenting Author.

58 **Log 643. QUANTITATIVE MATERIAL MORPHOLOGY ANALYSIS OF URANIUM POWDER SAMPLES .** Matthies, K.S. (1,P); Hanson, A.B. (1); Sentz, K. (1); Dimayuga, I. (2); Ayyagari, A. (2); Cluff, D. (2); Osmond, R. (2); Szlachta, V. (2); Totland, M. (2). (1) Los Alamos National Laboratory. (2) Canadian Nuclear Laboratories. (P) Presenting Author.

59 **Log 657. LABORATORY REMEASUREMENTS OF RADIOXENON TO SUPPORT NUCLEAR EXPLOSION MONITORING.** Goodwin, M.A.(1,P); (1) AWE Aldermaston. (P) Presenting Author.

60 **Log 660. DETERMINATION OF PLUTONIUM ASSAY VIA ICP-MS FOR NUCLEAR MATERIALS ACCOUNTABILITY.** Ripplinger, L.S. (1, P); Stanley, F.E. (2); Tardiff, E.R. (1); Harris, S.L. (1); Schaeffer-Cuellar, C.A. (1); Roehling, T.T. (1); Roberts, D.J. (1); Meeker, J.F. (1). (1) Lawrence Livermore National Laboratory. (2) Savannah River Nuclear Solutions. (P) Presenting Author.

61 **Log 690. STABLE GAS MEASUREMENTS FOR UNDERSTANDING RADIOLOGICAL RELEASES IN UNDERGROUND NUCLEAR EXPLOSIONS.** Whitehill, A.M.(1,P); Couture, A.H.(1); Fritz, B.G.(1); Alexander, T.R.(1); PE1-A Experiment Team. (1) Pacific Northwest National Lab. (P) Presenting Author.

POSTER SESSION C
WEDNESDAY 3:30 – 5:30

Sessions Included in poster session C (~50 posters total)
Track 4 and Track 5 Poster are emphasized in Poster Sessions C

- Track 4: Activation Analysis, Particle Beam and Imaging
- Track 5: Advanced Analytical Methods for Fuel Cycle Radiochemistry

1 **Log 134. CHEMICAL ANALYSIS IN PROMPT GAMMA ACTIVATION ANALYSIS USING THE IMPROVED SPECTROSCOPY DATABASE.** Révay, Zs. (1), Maróti, B. (2,P), (1) Forschungs-Neutronenquelle Heinz Maier-Leibnitz (FRM II). (2) HUN-REN Centre for Energy Research. (P) Presenting Author.

2 **Log 140. NEUTRON ACTIVATION ANALYSIS AS A REFERENCE METHOD FOR GRAPHENE CHARACTERIZATION.** Capucin, V.L.(P); Fernandes, E.A.N.; Zamunér Filho, A. N.; Bacchi, M.A. Nuclear Energy Center for Agriculture, University of São Paulo (CENA/USP) (P) Presenting Author.

3 **Log 141. ADVANCES IN CHARACTERIZATION OF COLLOIDAL SILICA: INSIGHTS FROM NEUTRON ACTIVATION ANALYSIS.** Capucin, V.L.(P); Fernandes, E.A.N.; Lima, R.C.; Zamunér Filho, A. N.; Bacchi, M.A. Nuclear Energy Center for Agriculture, University of São Paulo (CENA/USP) (P) Presenting Author.

4 **Log 202. CHARACTERIZATION OF QUALITY CONTROL MATERIAL FOR FORENSIC TIMBER IDENTIFICATION.** Moreira, G.R.(1,P); Fernandes, E.A.N.(1); Bacchi, M.A.(1); Gonzaga, C.L.(1). (1) Nuclear Energy Center for Agriculture, University of São Paulo. (P) Presenting Author.

5 **Log 206. REDOX CHEMISTRY OF ACTINIDES AT METAL OXIDE ELECTRODES.** Dares, C. J. (1,P); McLachlan, J. R. (1,2); Sheridan, M. V. (1,3); Grimes, T. S.(4). (1) Florida International University. (2) The University of California, Berkeley. (3) The University of Nevada, Las Vegas. (4) Idaho National Laboratory. (P) Presenting Author.

6 **Log 220. IMPROVEMENT TO IN-VIVO COUNTING PROGRAMS USING WHOLE BODY COUNTERS AT NUCLEAR POWER PLANTS.** Kong, T.Y.(1, P). (1) Chosun Unviersity. (P) Presenting Author.

7 **Log 222. COMPLEXATION OF RADIUM SURROGATES.** Valley, B.J.(1, P); Bai, Z.(1); Beck, N.B.(1); Brannon, J.P.(1); Castilow, V.(1); McKinnon, N.C.(1); Sperling, J.M.(1); Wineinger, H.B.(1); Albrecht, T.E.(1). (1) The Colorado School of Mines

8 **Log 223. COMPARISON OF METHODS FOR FLUORIDE DETERMINATION IN A HIGH ACTINIDE MATRIX.** Warne, M. (1); Couch, J. (1); Partridge, J. (1); Delmau, L. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.

9 **Log 230. INVESTIGATIONS OF ACTINIDE RADIONUCLIDE COUPLES FOR TARGETED ALPHA THERAPY .** Martelles, M. (1, P), Celis-Barros, C. (2), Albrecht, T. (1). (1) Colorado School of Mines. (2) Oak Ridge National Lab. (P) Presenting Author.

10 **Log 245. THE IMPACT OF ALPHA AND GAMMA IRRADIATIONS ON THE REDOX DISTRIBUTION OF PLUTONIUM IN ACIDIC MEDIA.** Grimes, T.S.(1, P); Kynman, A.E.(1), Mezyk, S.P.(2); Holmbeck, G.P.(1). (1) Idaho National Laboratory. (2) California State University Long Beach. (P) Presenting Author

11 **Log 249. MOBILE SYSTEMS FOR NEUTRON GAMMA ANALYSIS OF SOIL ELEMENTAL CONTENT.** Yakubova, G. (1,P), Kavetskiy, A. (1), Gautam, S.S. (1), Prior, S.A. (1), Torbert, H.A. (1). (1) USDA-ARS National Soil Dynamics Laboratory (P) Presenting Author.

12 **Log 253. RADIOIODINE SPECIATION IN PYROPROCESSING RESEARCH AND DEVELOPMENT.** Brookhart J. (1,P), Fredrickson G.(1), Holschuh II T.(1), Snow M. (1). (1) Idaho National Laboratory

13 **Log 255. HIGH PURITY U-233 PRESERVATION UPDATE 2025.** John Partridge(1,P); Jordan Couch(1); Jeff S. Delashmitt(1); Chris Wightman(1); Matt Warne(1); Howard Meadows(1); Brad Skidmore(2). (1) Chemical Sciences Division Oak Ridge National Laboratory. (2) Radioisotope Science and Technology Division Oak Ridge National Laboratory. (P) Presenting Author.

14 **Log 260. DEVELOPMENT AND USE OF HIGH PRECISION HOT CELL FUEL DISSOLUTION PROTOCOL.** Canaan, D. (1); Couch, J.(1, P), Delashmitt, J. (1); Guy, J. (1); Meadows, H. (1); Parker, B. (1); Partridge, J. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.

15 **Log 268. UPGRADED FISSION GAS MONITORING SYSTEM FOR POST IRRADIATION EXAMINATION HEATING TESTS OF TRISO PARTICLES FOR HIGH-TEMPERATURE GAS COOLED REACTORS.** Reber, E.L.(P); Fronk, R.G.; Walker, K.V.; Stempien, J.D. Idaho National Laboratory. (P) Presenting Author.

16 **Log 298. DEVELOPMENT OF A SYSTEM TO MEASURE FISSION-PRODUCT RELEASE RATES DURING HEATING OF IRRADIATED TRISO FUELS UNDER AIR/MOISTURE-INGRESS CONDITIONS.** Fronk, R.G. (1, P); Scates, D.M. (1); Scates, W.W. (1); Walker, K.V. (1); Reber, E.L.(1); Stempien, J.D. (1). Idaho National Laboratory. (P) Presenting Author.

17 **Log 306. ON THE STABILITY CONSTANTS OF METAL-NITRATE COMPLEXES IN AQUEOUS SOLUTIONS.** Dinpajooh, M. (1,P); Hightower, G. L. (1,2); Curtis, K. (1); Overstreet, R. E. (1); Metz, L. A. (1); Henson, N. J. (1); Govind, N. (1); Ritzmann, A. M. (1); Uhnak, N. E. (1). (1) Pacific Northwest NationalLaboratory. (2) University of Hartford. (P) Presenting Author.

18 **Log 318. REVERSE QUANTIFICATION OF UCL3 MOLTEN SALT SYSTEMS USING ARTIFICIAL INTELLIGENCE WITH ELECTROCHEMICAL METHODS.** Smith, J.T. (1,P); Phongikaroon, S. (1); (1) Virginia Commonwealth University. (P) Presenting Author.

19 **Log 319. DENSITY CHARACTERIZATION OF TRITIUM PRODUCING LIALO2 PELLETS THROUGH SCANNING ELECTRON MICROSCOPY (SEM) AND HE PYCNOMETRY.** Robb, A. (P, 1, 2); Bhakta, K. (1); Yao, J. (1); Harper, A. (1); Campbell, E. (1); Burgeson, I. (1); Buck, E. (1); Biegalski, S. (2); Luscher, W. (1). (1) Pacific Northwest National Laboratory, Richland, WA 99352. (2) Georgia Institute of Technology, Atlanta, GA 30332. (P) Presenting Author.

20 **Log 322. EFFECT OF ZIRCONIUM TETRACHLORIDE TO STRUCTURAL MATERIAL CORROSION IN MOLTEN SALT REACTOR.** Kyeongtae Park K.(1,P); Jaeyeong Park J.(1)
(1) Ulsan National Institute of Science and Technology

21 **Log 334. U(VI) COORDINATION BY POLYDENTATE N,O-DONOR LIGANDS.** Gutorova, S. V. (1,P); Matveev, P.I. (1). (1) Lomonosov Moscow State University

22 **Log 335. THE DESIGN AND DEMONSTRATION OF A SIMULATION SURROGACY METHOD FOR THE STUDY OF MSR LIFECYCLE CHEMISTRY.** Clayton, B.(1, P); Duong, L.(1); Gatenby-Latham, N.(1); Pope, S.(1); Xacur, J.(1); Chvala, O.(1); Clarno, K.(1). (1) The University of Texas at Austin. (P) Presenting Author

23 **Log 357. PRECISION GAMMA SCANNER: GAMMA RAY MEASUREMENT CAPABILITY FOR HIGHLY RADIOACTIVE MATERIAL.** Walker, K.W.(1, P); Fronk, R.G.(1); Reber, E.L.(1); Stempien, J.D.(1); Hawkins, K.(1). (1) Idaho National Laboratory. (P) Presenting Author.

24 **Log 396. RAPID MEASUREMENT OF DYNAMIC SOLVENT EXTRACTION DISTRIBUTION COEFFICIENTS THROUGH ONLINE MONITORING.** Fanner, A.J.(1,P); Cooper, J.T(1); Barnes, A.L.(1). (1) Idaho National Laboratory. (P) Presenting Author.

25 **Log 404. ORGANOMETALLIC FUNCTIONALIZED CLAYS FOR TECHNETIUM IMMOBILIZATION.** Maulden, E. (1); Gager, E. (1); Ta, A.T. (1); Wood, R. (1, P); Boglaienko, D. (2); Nino. J.C. (1); Pearce, C.I. (2); Phillpot, S.R. (1); Szecsody, J.E. (2); Wall, N. (1). (1) Unviersity of Florida. (2) Pacific Northwest National Laboratory. (P) Presenting Author.

Log 415. APPLICATION OF CHEMOMETRIC ANALYSIS FOR COMPLEX MOLTEN SALT CHEMISTRY . Branch, S.D.(1, P); Rakos, J.M.(1); Choi, S.(1); Felmy, H.M.(1); Schafer Medina, A.(1); Bryan, S.A.(1); Lines, A.M.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

26 **Log 420. IODOMETHANE INTERACTIONS WITH SOLID SORBENT.** Roenfeldt, R.(1,P); MacLaughlin, E.(1); Snow, M.(1); Lyon,K.(1); Welty,A.(1); Watrous, W.(1). (1) Idaho National Laboratory. (P) Presenting Author.

27 **Log 452. ZIRCONIUM MOLYBDATE LEACHING IN NITRIC ACID.** Duckworth, A.(1, P); Gogolski, J.(2); Rudisill, T.(2); Fara, R.(2); Wall, N.(1). (1) The University of Florida. (2) Savannah River National Lab. (P) Presenting Author.

28 **Log 457. INAA AND ICP-MS METHODS TO QUANTIFY TRACE ELEMENTS LEVELS IN LIMITED QUANTITY BIOPSY TISSUE .** Wiles, M.W.C.(1P); Diamond, A.M.(2); Brockman, J. D.(1,3); (1) University of Missouri. (2) University of Illinois Chicago. (3) University of Missouri Research Reactor. (P) Presenting Author.

29 **Log 500. DETAILS OF THE VERTICAL NEUTRON RADIOGRAPHY DEVICE FOR THIN LIQUIDS.** Schillinger, B (1,P), Craft, A (2), Sponar, S (3), Tkacz,P (1), Trunner,C (3) (1) Heinz Maier-Lebnitz Zentrum (FRM II), Technical University of Munich, Germany. (2) Idaho National Lab, USA. (3) Atominstitut Wien, Austria

30 **Log 530. COMPREHENSIVE ELEMENTAL CHARACTERIZATION OF CEMENT REFERENCE MATERIALS USING INTERNAL MONO-STANDARD NAA.** Kishore B. Dasari(1,2), Seongpyo Hong(1,3), Boyoung Han(1,3), Jaegi Lee (1,3), Gwang-Min Sun(1,3,P), (1)KAERI-KRISS Joint Research Center for Reference Materials using Research Reactor, KAERI, Republic of Korea, (2) The Research Institute of Natural Science, Gyeongsang National University, Jinju, Republic of Korea, (3) 3HANARO Utilization Division, Korea Atomic Energy Research Institute (KAERI), Daejeon, Republic of Korea

31 **Log 534. GEOCHEMICAL CHARACTERIZATION OF NORTHEAST ASIAN OBSIDIANS USING XRF AND NEUTRON ACTIVATION ANALYSIS .** Mi-Eun Jin(1); Gwang-Min Sun(1); Kishore Babu Dasari(2); Yong-Joo Jwa(2); Seongpyo Hong(1); Sung Hyo Lee(1). (1) HANARO Utilization Division, Korea Atomic Energy Research Institute. (2) Department of Geology, Gyeongsang National University. (P) Mi-Eun Jin (Corresponding author) Gwang-Min Sun

32 **Log 538. PROVENANCE ANALYSIS OF KOREAN CELADON AND WHITE PORCELEIN USING NEUTRON ACTIVATION ANALYSIS : IDENTIFYING TRACE ELEMENT INDICATORS AND OPTIMIZING QUANTITATIVE METHODS.** Jang, S.E. (1,2,P); Sun G.M. (1); Dasari, K.B. (1); Hong S.P. (1); Lee S.H. (1); Kim G.H.(2). (1) HANARO Utilization Division, Korea Atomic Energy Research Institute. (2) Department of Cultural Heritage Conservation Science, Kongju National University. (P) Presenting Author.

33 **Log 552. COMPARISON OF CATION EXCHANGE RESINS FOR CONCENTRATION OF PU USING SM AS A SURROGATE.** Rocco, N.D. (1); Reinhart, E.D. (1); Beck, C.L. (1); Heathman, C.R. (1); Corbey, J.F. (1); Speelman, A.L (1); Arbova, D.L. (1,P). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

34 **Log 555. MODELING FLUORINATED SPENT NUCLEAR FUEL IN A MOLTEN SALT REACTOR.** Gladden, Bradley J.(1,P); Haas, Derek A.(1); (1) The University of Texas at Austin. (P) Presenting Author.

35 **Log 560. DESIGNING AN INTEGRAL CL-35(N,P) CROSS SECTION MEASUREMENT.** Mathis, K.D. (1, P); Castro S. (1), Lapka, J.L. (1), Haas, D.A. (1). (1) The Univeristy of Texas at Austin

36 **Log 566. CHARACTERIZATION OF REACTOR GRAPHITE COMPONENTS FOR NUCLEAR WASTE REPOSITORY CONSIDERATIONS.** Boya, D.(1, P); Wickham, A.(2); Steinmetz, H.-J. (3); Langegger, E. (1,4); Steinhauser, G. (1). (1) TU Wien. (2) retired. (3) FH Aachen. (4) DMT. (P) Presenting Author.

37 **Log 573. NEUTRON FLUX DENSITY MEASUREMENTS OF TU WIEN'S TRIGA MK II REACTOR AFTER CONVERSION TO LOW ENRICHED URANIUM FUEL.** Petz, T.(1, P); Trunner, C.(1); Stummer, T.(1); Villa, M.(1); Steinhauser, G. (1). (1) TU Wien. (P) Presenting Author.

38 **Log 601. QUANTIFYING MAXIMUM POTENTIAL IMPURITY RATIO IN RADIOPHARMACUITICAL APPLICATIONS.** Persson, H. (1,P); Phillips, K.E. (1) Mirion Technologies (Canberra), Inc.

39 **Log 607. MEASURING UCL3 CONCENTRATION VIA PHASE TRANSITION VARIATION.** Yang W.(1,P), Kim T.(2), Jung C.(3), Cha H.L.(3), Kim J.(4), Jung I.H.(2,5), Bae S.E.(3, 6), Sungyeol Choi S.(1,4,7). (1) Nuclear Research Institute for Future Technology and Policy, Seoul National University. (2) Department of Materials Science and Engineering, Seoul National University. (3) Nuclear Chemistry Technology Division, Korea Atomic Energy Research Institute. (4) Institute of Engineering Research, Seoul National University. (5) Research Institute of Advanced Materials, Seoul National University. (6) Department of Nuclear Science and Technology, University of Science and Technology. (7) Department of Nuclear Engineering, Seoul National University

40 **Log 635. DIAMOND DETECTOR WITH NOVEL CONTACTS FOR NEUTRON SPECTROSCOPY.** Young, G.J.(1,P); Ison, A.H.(1); Romero-Romero, E.(1). (1) Nucleon Power, Inc. (P) Presenter

41 **Log 636. REFINED DETERMINATION OF K0 AND Q0 FACTORS FOR KEY SHORT-LIVED RADIONUCLIDES IN K0-NEUTRON ACTIVATION ANALYSIS.** Truong, T.S. (1); Ho, M.D. (2); Ho, V.D. (2); Tran, Q.T. (3); Hoang, S.M.T. (4,P). (1) HCMC University of Education. (2) Center for Nuclear Technologies. (3) Dalat Nuclear Research Institute. (4) Thu Dau Mot University. (P) Presenting Author.

42 **Log 638. COMPREHENSIVE DETERMINATION OF THE ELEMENTAL COMPOSITION OF COMMON ELECTRONIC WASTE COMPONENTS USING NEUTRON-BASED METHODS.** Buczkó, N.A.(1,2); Maróti, B.(1); Gméling, K.(1, P); Szentmiklósi, L.(1). (1) HUN-REN Centre for Energy Research, Budapest Neutron Centre. (2) ELTE Eötvös Loránd University, Hevesy György PhD School of Chemistry.

43 **Log 639. DETERMINATION OF NEUTRON ABSORPTION SELF-SHIELDING FACTORS FOR THREE LANTHANIDE ELEMENTS DURING NEUTRON ACTIVATION ANALYSIS.** Ross, W., (1,P) Landsberger, S. (1), Kennedy, G. (2). (1)The University of Texas at Austin, (2) Ecole Polytechnique, Montreal

44 **Log 648. NEUTRON IMAGING FOR PLANT REHYDRATION.** Gracheva M.(1,2); Maróti B.(1,P); Kis Z.(1); Müller B.(2); Solti A.(2). (1) Budapest Neutron Centre, HUN-REN Centre for Energy Research. (2) Department of Plant Physiology and Molecular Plant Biology, Institute of Biology, ELTE Eötvös Loránd University

45 **Log 687. FLOURIDE ANALYSIS BY ION CHROMATOGRAPHY IN SUPPORT OF FAST CRITICAL ASSEMBLY (FCA) SPENT NUCLEAR FUEL PROCESSING .** White, T.L.(1); Carter, L.M.(1). (1) Savannah River National Laboratory (SRNL)

46 **Log 694. SAMPLE ENVIRONMENTS FOR USING HARD X-RAYS TO STUDY NUCLEAR FUEL CYCLE PROCESSES.** Krzysko, A.J.(1, P); Servis, A(1); Lantis, J(1); Servis, M(1); McLain, D(1). (1) Argonne National Laboratory.(P) Presenting Author.

47 **Log 715. FEASIBILITY AND CHALLENGES OF NA-22-BASED RADIOACTIVE TRACER DILUTION FOR DETERMINING TOTAL MASS OF HIGHLY RADIOACTIVE MOLTEN SALT FOR PYROPROCESSING SPENT OXIDE NUCLEAR FUELS.** Cao, G. (1, P); Coleman, M. E. (1); Storms, B. (1); Williams, A. (1); Herrmann, S. (1); Li, S. (1); Cao, R. L. (2). (1) Idaho National Laboratory. (2) Ohio State University. (P) Presenting Author.

48 **Log 721. ACCURATE QUANTIFICATION OF SHORT-LIVED RADIONUCLIDES IN INAA USING THE HANARO PNEUMATIC TRANSFER SYSTEM.** Soengpyo Hong(1), Kishore B. Dasari(1,2,3), Bo-Young Han(1), Gwang-Min Sun(1,P), Jong-Hwa Moon(1), Sung Hyo Lee(1), Hana Cho(2), (1)HANARO Utilization Division, Korea Atomic Energy Research Institute, (2)Division of Chemical and Material Metrology, Korea Research Institute of Standards and Science (KRISS), (3)The Research Institute of Natural Science, Gyeongsang National University

49 **Log 733. PYROCHEMICAL PROCESS IN-SITU MONITORING USING CZT ARRAY GAMMA-RAY DETECTOR SYSTEM.** Rim, J.H. (1, P); Akin, A.C. (1); Winkler, R. (1); Tandon, L (1); Robbins N.D. (1). (1) Los Alamos National Laboratory. (P) Presenting Author.

50 **Log 738. MEASUREMENT OF THE ISOMERIC YIELD RATIO OF ZIRCONIUM-89M FROM ZIRCONIUM-88 THERMAL NEUTRON ABSORPTION.** Kelly I. (1); Flanagan W. (1,2,P); Moldenhauer J. (1); Charlton W. (2); Lapka J. (2); Nolting D (2). (1) The University of Dallas. (2) The Unviersity of Texas at Austin. (P) Presenting Author.

POSTER SESSION D
THURSDAY 3:30 – 5:30

Sessions Included in poster session D (~60 posters total)
Track 2 and Track 6 Posters are emphasized in Poster Sessions D

- Track 2: Nuclear Security, Nonproliferation and Forensics
- Track 6: Nuclear Science and Education

1 **Log 127. FIT FOR PURPOSE PROFICIENCY TEST MATERIALS.** Jassin, L. E. (1, P) 1. Eckert & Ziegler Analytics

2 **Log 135. UNVEILING THE ARCANA OF NUCLEAR MATERIALS: DISCOVERING NUCLEAR FORENSIC SIGNATURES USING "BIG" DATA.** Marks, N.E.(1,P); Simons-Rondona, J-P.(1); Hansen, S. (1); Genetti, V.(1); Chen, C.Y. (1); Robel, M.R.(1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

3 **Log 136. VR INTERGRATION FOR MATERIAL ACCOUNTANCY AND MODELING.** Cole, Shae(3,p); Erickson, Anna(1); (1) Georgia Institute of Technology. (P) Presenting Author.

4 **Log 137. EXTRACTION OF HEXAVALENT URANIUM, NEPTUNIUM, AND PLUTONIUM BY HEH[EHP] AND T2EHDGA.** Smith, L.A.(1, P); Gelis, A.V. (1). (1) University of Nevada, Las Vegas. (P) Presenting Author.

5 **Log 153. CHARACTERIZATION OF NOBLE GAS ADSORPTION AND DIFFUSION IN SUBSURFACE GEOLOGIC MATERIALS.** Wang, G.(1,P), Denis, E.(1), and Carman, A.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

6 **Log 204. QUANTIFYING HOT-PARTICLE ACTIVITY BY GAMMA SPECTROMETRY.** Semkow, T.M.(1,3,P); Chu L.T.(1,2); Burn A.G.(1,2). (1) New York State Department of Health. (2) State University of New York at Albany. (3) Retired. (P) Presenting Author.

7 **Log 217. DEVELOPMENT OF REFERENCE MATERIALS FOR THE DETERMINATION OF FE-55 AND NI-59 IN CONCRETE.** Jung, Y.(1, P), Lee, M.J. (1), Lee, S.H. (1). (1) Korea Reserch Institute Standards & Science. (P) Presenting Author.

8 **Log 234. MONITORING PLUTONIUM CONCENTRATION IN PROCESS SOLUTIONS THROUGH UV-VIS SPECTROPHOTOMETRY AND MULTIVARIATE ANALYSIS.** Pellerin-Lefebvre, A.(1); Bailly, G.(1); Geoffray, G.(1); Clement, A.(1, P). (1) CEA, DAM, Valduc.

9 **Log 238. RAPID QUANTIFICATION OF PU IN SOLUTION: A NITRIC ACID ASSAY .** Muscarella, K.B.(1,P); Adelman, S. L.(1); Carver, N. R.(1); Cava, A. J. (1); Jump, R. K.(1); Matonic, J. H.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.

10 **Log 239. LEVERAGING SOLID-STATE TRACE ELEMENT ANALYSIS FOR PLUTONIUM-238.** Cava, A.J.(1,P), Matonic, J.H.(1), Jump, R.K.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.

11 **Log 256. SINGLE-CRYSTAL CHEMICAL VAPOR DEPOSITION (SCVD) DIAMOND RESPONSE TO FAST-ENERGY NEUTRONS.** Nowicki, S. (1, P); Wender, S. (1); Perello Izaguirre; J. (1) Los Alamos National Laboratory. (P) Presenting Author.

12 **Log 257. CHARACTERIZATION OF SALTS, CRUCIBLES, AND METALS WITH GAMMA AND NEUTRON METHODS.** Egozi, C.(1, P); Wenz, T. R.(1); Akin, A. C.(1); Tandon, L.(1). (1) Los Alamos National Laboratory

13 **Log 293. URANIUM MINERALS FOR NUCLEAR FORENSIC SIGNATURE DISCOVERY AND CURIES: THE COMPENDIUM OF URANIUM RAMAN AND INFRARED EXPERIMENTAL SPECTRA..** Spano T.L. (P,1), Olds T.A. (2), McDonnell M.T. (1), Smith R.W. (1), Miskowiec A. (1), Felton D.E. (1), Sweet T.F.M.(1), Barth B.S. (1), Niedziela J.L.(1), Shields A.E.(1). (1) Oak Ridge National Laboratory. (2) Carnegie Museum of Natural History. (P) Presentin Author.

14 **Log 295. THE NUCLEAR ANALYTICAL CHEMISTRY SECTION'S SUPPORT TO PRODUCE THE NEXT GENERATION OF ACTINIDE REFERENCE MATERIALS.** Grant, C.E.(1, P); Giaquinto, J.M.(1); Ticknor, B.W.(1); Rogers, K.T.(1); Dyke, T.(1). (1) Oak Ridge National Laboratory

15 **Log 313. EXTRACTION AND SEPARATION OF RARE EARTH ELEMENTS USING SOFT DONOR LIGANDS IN CONJUNCTION WITH IONIC LIQUID AND 1-OCTANOL.** Harris, B.K.(1, P); Ball, R.D.(1). (1) Idaho National Laboratory. (P) Presenting Author.

16 **Log 327. EXPLORATION OF STRUCTURE-PROPERTY RELATIONSHIPS WITHIN A SERIES OF LOW-DIMENSIONAL HYBRID RUTHENIUM HALIDES.** Guthrie, H.D.(1,P); Schofield, M.H.(1) Cahill, C.L.(1). (1) The George Washington University. (P) Presenting Author.

17 **Log 356. AN UPDATED ULTRAVIOLET-VISIBLE-NEAR INFRARED ABSORPTION SPECTRUM OF HEPTAVALENT NEPTUNIUM IN PERCHLORIC ACID MEDIA.** Cicchetti, N. (1, P); Gelis, A.V. (1). (1) University of Nevada, Las Vegas

18 **Log 362. DEEP LEVEL TRANSIENT SPECTROSCOPY OF SILICON CARBIDE PASSIVE THERMOMETRY.** Mulligan, P.L. (1,P); Glasgow, D.C. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.

19 **Log 392. FUNDAMENTAL DATA SUPPORTING NOVEL RADIOCHEMICAL SEPARATIONS.** Olney, K.A.(1, P); Snow, M.S.(1); Fanner, A.J.(1); Cooper, J.T.(1). (1) Idaho National Laboratory.

20 **Log 373. TOWARD UNDERSTANDING AND OVERCOMING DOMAIN SHIFT.** Phathanapirom, B. (1, P); Dayman, K. (1); Stomps, J. (1). (1) Oak Ridge National Lab. (P) Presenting Author.

21 **Log 393. LONG-TERM ANNUAL PROFICIENCY TESTING IN FUKUSHIMA FOR QUALITY CONTROL OF ACTIVITY MEASUREMENT USING GAMMA RAY SPECTROMETRY.** Furukawa, R. (1, P); Miura, T. (1); Hachinohe, M. (2); Matsuzaki, S. (3); Murakoshi, M. (3); Yuki, M. (3); Hamamatsu, S. (4); Tokonami, S. (5); Harano, H. (1). (1) National Metrology Institute of Japan (NMIJ), National Institute of Advanced Industrial Science and Technology (AIST). (2) National Agriculture and Food Research Organization (NARO). (3) Fukushima Prefectural Centre for Environmental Creation (CEC). (4) Tokyo Metropolitan Agriculture Forestry Research Center. (5) Institute of Radiation Emergency Medicine (IREM), Hirosaki University.

22 **Log 398. QUANTIFYING UNCERTAINTY IN URANIUM CONCENTRATION MEASUREMENTS VIA K-EDGE DENSITOMETRY.** Henning, A.N.(1,2,P); Swinney, M.W.(2); Chirayath, S.S.(2); Hogue, K.K.(2); Sobel, P.W.(2); Biegalski, S.R.(1). (1) Georgia Institute of Technology. (2) Oak Ridge National Laboratory.

23 **Log 399. DRIVERS FOR THERMAL AND RADIOLYTIC DEGRADATION OF PLUTONIUM OXALATES.** Kersey, W.A. (1, P); Darvin, J.R. (2); Villa-Aleman, E. (2); Dick, D.D. (2); Steehee, T.C. (2); Foley, B.J. (2); Hartig, K.C. (1). (1) Nuclear Engineering Program, Unviersity of Florida; (2) Savannah River National Laboratory; (P) Presenting Author.

24 **Log 482. COLLISION-INDUCED DISSOCIATION MASS SPECTROMETRY FOR SMALL QUANTITY ACTINIDE-LIGAND INTERACTION STUDIES .** Zarzana, C. A.(1,P); Kim, J. (1); Martelles, M. (2); Pilgrim, C. D.(1); Celis-Barros, C. (3); Albrecht, T. (2); Hodges, B. D. M. (1). (1) Idaho National Laboratory. (2) Colorado School of Mines. (3) Oak Ridge National Laboratory. (P) Presenting Author.

25 **Log 497. STATISTICAL REVIEW OF THE PERFORMANCE OF A LARGE SET OF DETECTOR MODELS USED FOR EFFICIENCY CALIBRATION IN GAMMA SPECTROMETRY.** Persson, H. (1,P); Phillips, K.E. (1); Sullivan, D. (1) Mirion Technologies (Canberra), Inc.

26 **Log 508. APPLICATION OF FLOW ELECTROLYSIS TO MASS SPECTROMETRY OF TETRAVALENT ACTINIDES.** K. Yanagisawa(1,P); M. Matsueda(1); T.Oka(1); Y. Kitatsuji(1). (1) Japan Atomic Energy Agency

27 **Log 510. GAMMAEDU EDUCATION KIT TO MEASURE RADIOACTIVITY: THE LAMPEDUSA CASE .** Colucci, M. (1,2); La Verde G. (3); Pugliese M. (3); Cagnetta, M.F. (2); Persico, E. (2); Manenti, S. (1,2); Groppi, F. (1,2). (1) LASA laboratory, Physics Department of University of Milano, Milan, Italy; (2) LASA laboratory, INFN-MI, Milan, Italy; (3) Physics Department of University of Naples Federico II and INFN-NA, Naples, Italy

28 **Log 519. COMPARISON OF COMMERICALLY AVAILABLE ANION EXCHANGE RESINS FOR PLUTONIUM PURIFICATION.** Arbova, D.L.(1,P); Reinhart, E.D.(1); Perry, A.N.(1); Corbey, J.F.(1); Lumetta; G.J.(1); Seiner, B.N.(1). (1) Pacific Northwest National Laboratory

29 **Log 523. CONCENTRATION MEASUREMENTS IN SOLVENT EXTRACTION USING COTS COLOR SENSORS.** Cardenas, E. S.(1, P); Greenhalgh, M.(1); Hix, J.(1); Ocampo Giraldo, L.(1); Daw, M.(1). (1) Idaho National Laboratory. (P) Presenting Author.

30 **Log 527. QUANTIFICATION OF SILICON IN PLUTONIUM METALS - METHOD COMPARISONS AND CHALLENGES.** Nolan, J.R.(1,P); Colletti, L.P.(1); Bartlett, J.H.(1); Walker, L.F.(1); Lujan, E.J.W.(1); Tandon, L.(1); Olson, A.C. This is an example. Paul, M.J.(1,2); Byers, M.F.(1); Haas, D.A.(1, P); Biegalski, S.R.(3); De Luna, B.A.(1);Barth, B.S.(1). (1) Los Alamos National Laboratory (P) Presenting Author.

31 **Log 592. TRACE ELEMENTAL AND ISOTOPIC ANALYSIS OF ACTINIDE MATERIALS WITH AN AUTOMATED MICROFLUIDIC SYSTEM.** Han, S.Y.(1, P); Treves Brown, B.(1); Higginson, M.A.(2); Kaye, P.(2); Sharrad, C.A.(1); Heath, S.(1). (1) The University of Manchester. (2) AWE. (P) Presenting Author.

32 **Log 602. VALIDATION OF A NEW TRUE COINCIDENCE SUMMING CORRECTION ALGORITHM FOR GENIE TO MONTE-CARLO SIMULATIONS AND MEASUREMENTS.** Persson, H. (1); Archambault, B.C. (2); Greenwood, L.R. (2); Phillips, K.E. (1); Pierson, B.D.(2), (1) Mirion Technologies (Canberra), Inc. (2) Pacific Northwest National Laboratory

33 **Log 611. RADIUM-228 TARGET FABRICATION AFTER SEPARATION FROM THORIUM-232 BY POLYVINYLPOLYPYRROLIDONE FOR RADIOPHARMACEUTICAL ACTINIUM-225 PRODUCTION.** Yin, F.(1, P); Yamamura, T.(2); Suzuki, T.(1). (1) Nagaoka University of Technology. (2) Kyoto University. (P) Presenting Author.

34 **Log 617. SEPARATION OF ZR-88 AND Y-88 FOR THE PREPARATION OF ZR-88 TARGETS IN NUCLEAR DATA MEASUREMENTS.** Lapka, J. L. (1, P); Nolting, D. D. (1); Charlton, W. (1); Moldenhauer, J. (2) Flanagan, W. H. (1, 2). (1) The Unviersity of Texas at Austin. (2) University of Dallas. (P) Presenting Author.

35 **Log 620. HPGE PROBES: INNOVATIVE, ADAPTABLE CHARACTERIZATION TOOLS FOR USE IN CHALLENGING OPERATING CONDITIONS.** Masseron, J. (1, P); Ilie, G. (2); Ginsz, M. (1); Ralet, D. (1); Altermatt, G. (1). (1) Mirion Technologies (Canberra) SAS - Lingolsheim, France ; (2) Mirion Technologies Inc. - Meriden, CT, USA

36 **Log 621. P-TYPE SINGLE-ELEMENT DETECTORS: COMBINING P-TYPE BETTER ENERGY RESOLUTION AND X-RAY DETECTORS HIGHER COUNT RATES CAPABILITY.** Masseron, J. (1, P); Ginsz, M. (1); Ilie, G. (2); Legras, J.-B. (1); Ralet, D. (1). (1) Mirion Technologies (Canberra) SAS - Lingolsheim, France; (2) Mirion Technologies Inc. - Meriden, CT, USA

37 **Log 624. STRUCTRUAL DETERMINATION AND CHARACTERIZATION OF A NOVEL URANYL TETRANUCLEAR CLUSTER.** Russell, I.A.(1,P); Emory Z.C.(1); Sockwell, A.K.(1); and Hixon, A.E.(1). (1) University of Notre Dame.

38 **Log 641. INTEGRATING A COLLABORATIVE ROBOT INTO COUNTING FACILITY OPERATIONS.** Weiss, M. A. (1, P), Thomas, K. J. (1), Hunter, S. (1), Goodell, J. (1), Frandson, T. (1), McConkie, J. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

39 **Log 642. RU-103 RADIOLABELING OF ETHYLENE-PROPYLENE-DIENE (EPDM) ELASTOMER.** Muckenhuber, H. (1); Sahovic, N. (2); Welch, J. M. (1, P); Sterba, J. H. (1). (1) Center for Labelling and Isotope Production, TRIGA Center Atominstitut, TU Wien. (2) TU Wien. (P) Presenting Author.

40 **Log 654. FRICTIONLESS KNOWLEDGE INJECTION FOR FEW-SHOT LEARNING.** Stomps, J. (1); Dayman, K. (1,P); Randolph, C. (1); Hite, J. (1); Phathanapirom, B. (1)

41 **Log 664. ACTINIDE ELECTROCHEMISTRY AND TRANSPORT PROPERTIES IN DEEP EUTECTIC SOLVENTS.** Dean-Kersten, W.(1, P); Servis, A. (1) (1) Argonne National Laboratory (P) Presenting Author.

42 **Log 674. SEPARATIONS FOR POST-DETONTATION NUCLEAR FORENSICS: EFFECTS OF MAJOR METALS FOUND IN ASPHALT ON ACTINIDE DETERMINATION.** Chunko, R.N. (1, P); Sudowe, R. (1). (1) Colorado State University. (P) Presenting Author.

43 **Log 677. DEVELOPMENT OF A NEW ULTRA HIGH ENERGY RESOLUTION MICROCALORIMETER GAMMA SPECTROMETER.** Schreiber, K.A. (1,P); Keller, M.W. (3); Wessels, A.L. (2); McNeel, D.G (1); Croce, M.P. (1); Carpenter, M.H. (1); Dede, S. (1); Stark, E.N. (1); Schoenemann, R.U. (1); Becker, D.T. (4); Bennett, D. A. (3); Gard, J.D. (4) Mates, J.A.B. (3); Swetz, D. (3); Schmidt, D. (3); Ullom, J.N. (3,4); Pierson, B. (5); Archambault, B. (5); Batie, G. (5); Arrigo, L. (5); Good, E. (5). (1) Los Alamos National Laboratory, (2) HRL Laboratories, (3) National Institute of Standards and Technology, Boulder, CO, (4) University of Colorado Boulder, Boulder, CO, (5) Pacific Northwest National Laboratory (P) Presenting Author.

44 **Log 678. PHYSICS-AWARE DATA ANALYTICS EFFECTIVELY TREAT SPARSE SENSOR DATA.** Stomps, J. (1); Dayman, K. (1); Phathanapirom, B. (1,P); (1) Oak Ridge National Laboratory; (P) Presenting Author

45 **Log 684. MICROCALORIMETER MEASUREMENTS OF NUCLEAR FUEL SAMPLES AT IDAHO NATIONAL LABORATORY.** Abel, E.P. (1,P), Williams, A.N. (1), Ullom, J.N. (2), Schreiber, K.A. (3), Keller, M.W. (2), Bucher, B.M. (1), Seabury, E.H. (1), Swetz, D.S. (2), Becker, D. (2,4), Croce, M.P. (3). (1) Idaho National Laboratory, (2) National Institute of Standards and Technology, (3) Los Alamos National Laboratory, (4) University of Colorodo, Boulder

46 **Log 686. DETERMINATION OF 4, 6 DINITROPHENOL IN SIMULATED RADIOACTIVE WASTE BY HIGH PERFORMANCE LIQUID CHROMOTOGRAPHY.** Dekarske, J.R.(1), White, T.L.(1); Johnson, S.A. (1) Savannah River National Laboratory (SRNL)

47 **Log 695. XENON RADIOISOTOPE PRODUCTION USING CARIBU.** Krzysko, A.J.(1, P); Lantis, J(1); O'Connor, T(1); Steeb, J(1); Mueller, P(1). (1) Argonne National Laboratory. (P) Presenting Author.

48 **Log 696. PLUTONIUM-ORGANIC MATTER COMPLEXATION COUPLED WITH IRON REDOX FACILITATED COPRECIPITATION: LABORATORY INSIGHT INTO PLUTONIUM CYCLING IN A SEASONALLY STRATIFIED POND.** Montgomery, D.A. (1, P); Powell, B.A. (1). (1) Clemson University. (P) Presenting Author.

49 **Log 699. ALANINE X RAY DIFFRACTION FOR MIXED FIELD RADIATION DETECTION.** LTC Omololu Makinde (1,2,P); Urvi Jain(2); Dr. Michael A. Reichenberger(3); Dr. Thomas V. Holschuh II (3);Dr. Nancy Diaz-Elsayed (2); Dr. Nathan Gallant (2). (1) United States Army Student Detachment. (2) University of South Florida, Mechanical Engineering Department. (3) Idaho National Laboratory. (P) Presenting Author.

50 **Log 700. 233PA ISOTOPIC DILUTION SPIKE PREPARATION FOR USE IN 231PA / 235U CHRONOMETRY APPLICATIONS.** O'Hara, M. J. (1); Speetjens, S. E. (1,P); Shen, S. D. (1); Krogstad, E. J. (1); Paudel, W.; Springfels, D. C. (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

51 **Log 705. CS ISOTOPE DETERMINATION IN ENVIRONMENTAL SAMPLES BY TIMS.** Turner, G.L.(1, P); Berry, C.K.(1); Anderson, I.R(1); Gartman, B.N.(1); Gajos, N.A. (1). (1) Pacific Northwest National Laboratory.

52 **Log 707. COMBINING SEAWATER ACTIVATION WITH PHOTOFISSION TOWARD PRODUCTION OF SURROGATE MARITIME NUCLEAR EXPLOSIVE DEBRIS.** Cooper, J.C.(1)(P); Snow, M.S.(1); (1) Idaho National Laboratory (P) Presenting Author.

53 **Log 712. AUTOMATED SPECTRUM ANALYSIS AND RADIONUCLIDE IDENTIFICATION FOR ROBOT-BASED GAMMA PROBES.** Barzilov, A.(1, P); Alila, K.(1). (1) University of Nevada Las Vegas. (P) Presenting Author.

54 **Log 716. MICROCHEMISTRY ANALYSES FOR POST-DETONATION NUCLEAR FORENSICS.** Scott, S.R. (1, P); Pratt, S. (1); Melby, K. (1); Sullivan, D.L. (1); Noyes, K.L. (1); Douglas, M (1); Metz, L (1). (1) Pacific Northwest National Laboratory. (P) Presentig Author.

55 **Log 718. FLUORINATION OF CERIUM MICROSPHERES FOR ACTINIDE TRANSPOSITION.** Haynes, R. B. (1, P); Poineau, F. (!). (1) University of Nevada, Las Vegas. (P) Presenting Author.

56 **Log 719. RAPID SAMPLE PREP AND AMS ANALYSIS OF BE-10 IN FRESHLY IRRADIATED HEU .** Hidy, A. J. (1, P); Dorais, C. (1); Wilkinson, J. T. (1); Walker, A. (1); Tumey, S. J. (1); Anderson, T. S. (1), Gharibyan, N. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.

57 **Log 725. DISTRIBUTION OF RADIOACTIVE STRONTIUM-90 IN SKULL BONE OF WILD SMALL ANIMALS DETERMINED BY THERMAL IONIZATION MASS SPECTROMETRY.** Goto, M.(1, P); Ishiniwa, H.(2); Takagai, Y.(1, 2). (1) Fukushima University. (2) IER, Fukushima University. (P) Presenting Author.

58 **Log 726. I WONDER IF IN THE FUTURE.....** Inn, K.G.W. (1, 2, P); Biegalski, S. (3); Bronson, F. (4); Burns, D. (5); Burns, J. (6); Cao, R. (7); DiPrete, D. (8); Fern, M. (9); Haas, D. (10); Klug, C. (11); Kurosaki, H. (12); Penchoff, D. (13); Porterfield, D. (14); Sudowe, R. (15); Taylor, B. (16); Van Cleef, D. (17). (1) K&E Inn Ovations, Inc. (2) NIST, Retd. (3) Georgia Institute of Technology. (4) Merion Technologies. (5) USAF. (6) USEPA, NAREL. (7) Ohio State U. (8) SRNL. (9) Eichrom Technologies. (10) U of Texas. (11) [Eckert & Ziegler Analytics, Inc. (12) ORNL. (13) U of Central Florida. (14) LANL. (15) Colorado State U. (16) Washington State Dept of Health. (17) ORNL. (P) Presenting Author.

59 **Log 727. TITANIUM PHOSPHATES FOR ION EXCHANGE STUDIES.** Ramirez, P.I.(1,P); Czerwinski, K.R.(1). (1) University of Nevada, Las Vegas

60 **Log 730. EFFECTS OF ALKALINE EARTH METAL SALTS ON LITHIUM ISOTOPE EXCHANGE REACTIONS.** Tachibana, Y.(1, P); Kalak, T.(2); Abe, T.(3); Nogami, M.(4); Suzuki, T.(5); Tanaka, M.(6). (1) Kyushu University. (2) Poznań University of Economics and Business. (3) National Institute of Technology, Tsuruoka College. (4) Kindai University. (5) Nagaoka University of Technology. (6) National Institute for Fusion Science.

61 **Log 731. DEVELOPMENT OF SMALL-SCALE SEPARATION METHODS FOR THE RAPID ANALYSIS OF POST-DETONATION NUCLEAR DEBRIS.** Baltes, Anastasia (1, P); Gelis, Art (1). (1) University of Nevada, Las Vegas; (P) Presenting Author

62 **Log 732. SPATIAL RADIOCHRONOMETRY MODEL AGE IN CAST DEPLETED URANIUM.** Robertson, B.N.(1,2, P); Athon, M.A. (1); Shen, S.D.(1); Kroontje, F. K.(1); Krogstad, E.J.(1) Nims, M.K.(1) Kant, L.B.(1). (1) Pacific Northwest National Laboratory (2) Oregon State University. (P) Presenting Author.

62 **Log 736. MODELS OF AR-39 AS A LONG-TERM INDICATOR OF UNDERGROUND NUCLEAR EXPLOSIONS.** Lowrey, Justin (1); Johnson, Christine (1, P); Luo, Xiao (1); White, Signe (1); Rockhold, Mark (1) . (1) Pacific Northwest National Laboratory. (P) Presenting Author.

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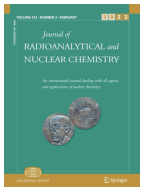

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