FINAL Program

MARC XII

Twelfth International Conference on
Methods and Applications of
Radioanalytical Chemistry
April 3 - 8, 2022

An International Topical Conference
sponsored by the
American Nuclear Society

Final version: March 22, 2022

www.marcconference.org

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American Nuclear Society

The 12th International Conference on Methods and Applications of Radioanalytical Chemistry is a 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 XII, and the ANS National Program Committee for their support and guidance to the MARC XII leadership team.

MARC SPONSORS

The Organizing Committee of MARC and in particular the Publicity Committee for MARC XII 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 Tuesday night for MARC XII.

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 ratio mass spectrometry at MARC XII.

We give special thanks to ORTEC (AMETEK) and ThermoFisher Scientific for their long term and high level of support for MARC XII.

We would like to warmly acknowledge the substantial support of Eckert & Ziegler, Nu Instruments (AMETEK), Cameca (AMETEK), Elemental Scientific Inc, and PHDS Co for MARC XII.

The Organizing Committee has been excited and thankful for the new Monday evening mixer and panel discussion event, 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 workshops on advanced gamma spectrometry at the conference.

Finally, we would like to express our appreciation and acknowledge Crazy Shirts for use of their logo as part of the MARC XII 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
Publicity Chair, MARC XII

CONFERENCE INFORMATION

Registration

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

Sunday, April 3: 8:00 – 3:00
Monday, April 4: 7:30 – 3:00
Tuesday - Thursday: 8:00 – 3:00
Friday, April 8: 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 in four parallel oral sessions held in the Kamakahonu Ballrooms 1 - 4. 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 approximately 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 Session Chair, no copies are provided to anyone.

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 needs with the Program or Conference Chairs.

UPDATED FOR MARC XII----All oral presentations must be provided to the Program Chair at least one day prior to the session in which it will be presented 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. 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 if an updated file is needed uploaded have been provided and we are more than happy to assist with any questions of 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.

Poster Sessions

There will be four poster sessions held on Monday, Tuesday, Wednesday and Thursday afternoons in the conference hotel. We will provide Velcro dots to attach the posters to the boards. Put up and tear down times are as follows:

Poster session A. Put up posters Monday morning, 7:30 – 12:00. Tear down posters Monday after 5:30.
Poster session B: Put up posters Tuesday morning, 7:30 – 12:00. Tear down posters Tuesday after 5:30.
Poster session C. Put up posters Wednesday morning, 7:30 – 12:00. Tear down posters Wednesday after 5:30.
Poster session D. Put up posters Thursday morning, 7:30 – 12:00. Tear down posters Thursday after 5:30.

Posters left in the area that were not collected by 7:30 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.

Breakfasts and Breaks

MARC XII is pleased to offer a light breakfast Monday – Friday 7:00 – 8:00 AM in either the Ballroom Foyer or the Herb Kane Breezeway, and coffee breaks during the morning oral sessions and afternoon poster sessions. We would like to thank the following sponsors for their support to make these events possible, including:

Monday Breakfast: Ortec / Ametek
Monday Breaks: Cameca / Ametek

Tuesday Breakfast: ThermoFisher Scientific
Tuesday Breaks: Elemental Scientific Inc.

Wednesday Breakfast: Eckert & Ziegler
Wednesday Breaks: Nu Instruments / Ametek

Thursday Breakfast: IsotopX
Thursday Breaks: PHDS

Friday Breakfast: Mirion / Canberra
Friday Break: Cameca / Ametek

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, 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 first step, submit an abstract using the MARC XII Abstract Submission Form. The 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 XII 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 selected. Information has been provided regarding the uploading of the papers to the JRNC for the special issue.

There will be an Author's Desk in the registration area where assistance with the process will be available. All reviews will be conducted via the JRNC process and additional details and assignments will be made upon completion of the conference. It is critical that papers are provided in publication quality with few corrections necessary to maintain a timely review process. Please see the website for additional information. Papers for review will be assigned with the assistance of the session chairs. Please be prepared to review papers assigned by the deadline assigned to ensure we meet publication deadlines.

Sponsored Social Events

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. All conference attendees and their guests are invited to the Sunday afternoon Hevesy Medal Award Ceremony and reception immediately following the ceremony. These are (times to be announced at the conference):

Sunday 5:30 - 6:30 pm: Welcome Reception in Honor of Hevesy Medal winner, Dr. Stefaan Pommé, on the grounds of the hotel. All conference attendees are we to attend.

Monday thru Friday 7:00 - 8:00 am: A light continental breakfast and beverages will be provided for attendees each morning

Monday evening 3:30 – 7:30 pm: The first poster session will also serve as a mixer to engage with the large number of students attending MARC XII. The event will be in the Herb Kane Breezeway and Courtyard on the hotel grounds followed by panel led sessions in the ballroom area. The poster session will start at 3:30, and light pu pu's and beverages will be provided from 4:00 – 5:30. Please see page 24 for additional information on the panel led discussion session, which will start at 5:30. Additional information will be provided by e-mail and as a flyer available at the registration desk.

Tuesday evening 5:00 pm: A private conference reception and dinner at the hotel's Honu's Lawn and Luau Grounds. Sponsored by our friends at Mirion / Canberra.

Thursday evening 6:00 pm: Farewell Reception and Dinner at the hotel's Honu's Lawn and Luau Grounds, sponsored by our friends at IsotopX.

*Guests may purchase a ticket for the Welcome Reception, Luau or Farewell Dinner at the registration desk if they have pre-registered attendance with the Conference Secretary.

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 excursions.

Guests wishing to attend the Welcome Reception (Sunday evening), Luau (Tuesday evening) and the Farewell Dinner (Thursday evening) may purchase tickets to each event at the conference, if they have pre-registered with the Conference Secretary. Please visit the conference Registration Desk for further details.

COVID-19

The MARC conference will follow COVID safety practices consistent with the guidance and requirements of the U.S. Centers for Disease Control and Prevention (CDC), State of Hawaii, County of Hawaii and the Courtyard King Kamehameha's Kona Beach Hotel.

An Attendee Safety Plan will be put on the website and may be updated from time-to-time before and during the MARC conference.

INTRODUCTION AND WELCOME

Aloha! Welcome to the Twelfth International Conference on Methods and Applications of Radioanalytical Chemistry (MARC XII). 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 XII to overcome the challenges presented over the past few years. To our first-time attendees, thank you for choosing MARC to present your work! This conference continues to show strong presence in the number of papers and highlights the continued importance of the field of radioanalytical chemistry. For the many participants attending for the first time, we hope you enjoy both the scientific and social activities and that you will take advantage of the relaxed and informal atmosphere to interact with colleagues from around the world in a beautiful, tropical setting. We are very glad to return to the **Courtyard King Kamehameha's Kona Beach Hotel** where we held the first eight MARC conferences.

The organizers, in collaboration with the Journal of Radioanalytical and Nuclear Chemistry Board of the Hevesy Award, welcome the decision to present the Year 2020 Hevesy Award for outstanding achievement in radioanalytical and nuclear chemistry at the opening ceremony of MARC XII. We extend our congratulations to Dr. Stefaan Pommé who was selected as the 2020 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 22nd, 2022 so any changes will be posted at the conference registration desk. Finally, we hope to see all of you and your guests at the receptions and Luau. These social events have always been a highlight of the conference and a good time is had by all!

Mahalo,

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

MARC XII: Final Program

	Morning	Afternoon	
Sunday workshop Ballroom A	Gamma Ray Spectrometry Part i (9-11)	Gamma Ray Spectrometry Part ii (1-3)	
Sunday workshop Ballroom B		Introduction to Mass Spectrometry	
Sunday Hevesy Award	(Conference registration opens at 8 am and closes at 3 pm, located outside of the ballroom area)		(A) Hevesy Medal Award Ceremony and Reception (4:30-6:30) on Hotel Grounds
	Morning	Afternoon	
Monday Ballroom 1	Session B: Intentional Forensics	B (continue)	Poster Session A and Mixer for Attendees 3:30-5:30 PM Light hors d'oeuvres and drinks served in the Herb Kane Breezeway Panel discussions 5:30 – 8:00 PM In Ballroom Area
Monday Ballroom 2	Session C: Ultra-sensitive Mass Spectrometric and Radiometric Methods for Environmental and Space Applications	C (continued)	
Monday Ballroom 3	Session D: Neutron Imaging Technologies and Applications	D (continued)	
Monday Ballroom 4	Session E: Separation Chemistry and Target Preparation for Nuclear Chemistry Experiments	E (continued)	
	Morning	Afternoon	
Tuesday Ballroom 1	Session F: Actinide Mass Spectrometry for Treaty Monitoring and Nuclear Forensics	F (continue)	Poster Session B 3:30-5:00 PM Evening Event: Private Luau on Hotel Grounds 5:00 PM Reception 6:30 – 9:00 PM Dinner
Tuesday Ballroom 2	Session G: Environmental Radioactivity- Field, Laboratory and Modeling Studies	G (continued)	
Tuesday Ballroom 3	Session H: Instrumental, Preconcentration, Radiochemical and Speciation Activation Analysis	H (continued)	
Tuesday Ballroom 4	Session I: Advances in the Nuclear Fuel Cycle and Improvements in High Activity Separations Methods including Actinide, Lanthanide, and Fission Products	I (continued)	

	Morning	Afternoon	
Wednesday Ballroom 1	Session J: Application of Nuclear Techniques to Treaty Monitoring and Nuclear Forensics]	Session J (continued)	Poster Session C 3:30-5:00 PM
Wednesday Ballroom 2	Session K: Advances in Actinide Analytical and Radionuclear Chemistry]	Session N: Environmental Radioactivity]	
Wednesday Ballroom 3	Session L: Development and Application of Nuclear Analytical Methods with Neutron Beam Technologies]	Session O: International Status and Challenges of Radiochemistry Education and Training]	
Wednesday Ballroom 4	Session M: Salt Chemistry and Radiochemistry in Support of Molten Salt Reactors	Session M (continued)	

	Morning	Afternoon	
Thursday Ballroom 1	Session P: Advances in Gamma Spectrometry Methods, Instrumentation, and Software in in the Laboratory and in the Field	Session P (continued)	Poster Session D 3:30-5:00 PM Evening Event: Farewell Reception on hotel grounds 6:00 PM
Thursday Ballroom 2	Session Q: Forensic Methods, Analysis and Applications of Wide Area Monitoring for Environmental Releases	Session Q (continued)	
Thursday Ballroom 3	Session R: Emerging technologies in Nuclear Nonproliferation	Session R (continued)	
Thursday Ballroom 4	Session S: Radiochronometry Techniques for Nuclear Forensics	Session T: Current Needs and Future Challenges for Nuclear and Radiological Reference Materials and Calibration Phantoms	

	Morning
Friday Ballroom 1	Session U: Nuclear Data for Nuclear Security
Friday Ballroom 2	Session V: Advances in Microscopy, Imaging, and Spatially Resolved Methods for Nuclear Forensics and Other Applications
Friday Ballroom 3	Session W: Analytical and Electrochemical Technology Development for Pyroprocessing
Friday Ballroom 4	Session X: Isotope Production and Applications: Medical, Space, Nuclear Security, Nonproliferation, and Geochemistry Applications

Program

Sunday, April 3

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

Registration will be available throughout the conference. You may find us ready to take some registrants late Saturday afternoon if all preparations go well!

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 for the conference 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:
(http://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.

B**) Introduction and presentation of the Hevesy Medal Award**: Prof. A. Chatt, Dalhousie University, Chair of JRNC Board of the Hevesy Award and Chair of 2020 Hevesy Award Medal Selection Panel: Dr. Stefaan POMMÉ of the European Commission, Joint Research Centre (JRC) in Geel, Belgium has been selected to receive the 2020 Hevesy Medal Award in recognition of his worldwide leadership in radioactivity measurements at the highest level of accuracy providing absolute standards, accurate decay data, and innovative methods. The Hevesy Lecture will be delivered on Tuesday in the session on Instrumental, Preconcentration, Radiochemical and Speciation Activation Analysis.

C) 5:30-6:30 PM Reception on the Honu's Lawn area at the hotel.

Hevesy Medal Award Presentation

RADIONUCLIDE METROLOGY – CONFIDENCE IN RADIOACTIVITY MEASUREMENTS. Stefaan Pommé, European Commission, Joint Research Centre (JRC) Geel, Belgium.

Radionuclides, whether in natural quantities or artificially produced, are readily detected through their particle and photon emissions following nuclear decay. Radioanalytical techniques use the radiation as a looking glass into the composition of materials, thus providing valuable information to various scientific disciplines. Absolute quantification of the measurand often relies on accurate knowledge of nuclear decay data and detector calibrations traceable to the SI units. Behind the scenes of the radioanalytical world, there is a small community of radionuclide metrologists who provide the vital tools to convert detection rates into activity values. They perform highly accurate primary standardizations of activity to establish the SI unit becquerel for the most relevant radionuclides and demonstrate international equivalence of their standards through key comparisons. The trustworthiness of their metrological work crucially depends on a painstaking scrutiny of their methods and the elaboration of a comprehensive uncertainty budget. Through meticulous methodology, rigorous data analysis, innovation, education and training, performance of reference measurements, and organization of proficiency tests, they help the user community to achieve confidence in measurements for policy support, science, and trade. The author dedicates the George Hevesy Medal Award 2020 to the current and previous generations of radionuclide metrologists who devoted their professional lives to this noble endeavor.

SESSION B: INTENTIONAL FORENSICS

ALL DAY MONDAY IN BALLROOM A

ORGANIZED BY NAOMI MARKS, LAWRENCE LIVERMORE NATIONAL LABORATORY, USA; AND REBECCA CHAMBERLIN, LOS ALAMOS NATIONAL LABORATORY, USA

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 537. KEY STRATEGIES AND SCIENTIFIC QUESTIONS FOR AN INTENTIONAL FORENSICS APPROACH TO NUCLEAR MATERIAL PROVENANCE ASSESSMENT.** Chamberlin, R.M.(1,P); Marks, N.E.(2); Shields, A.E.(3); Wellons, M.S.(4) (1) Los Alamos National Laboratory (2) Lawrence Livermore National Laboratory (3) Oak Ridge National Laboratory (4) Savannah River National Laboratory (P) Presenting Author
8:40	2	**Log 545. BULK URANIUM METAL TAGGING FOR INTENTIONAL FORENSICS.** Hackenberg, R.E.(1) ; Luitjohan, K.E.(1, P); Imhoff, S.D.(1); O'Brien, L.B.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
9:00	3	**Log 326. ENGINEERED MICROPARTICULATES FOR THE INTRODUCTION OF INTENTIONAL FORENSIC SIGNATURES TO NUCLEAR FUELS.** Scott, S.M.(1,P); Lawson, S.(1); Samperton, K.(1); Bronikowski, M.(1); Hoar, E.(1); Smith, R.(1); Wellons, M.(1). (1) Savannah River National Laboratory, Aiken, SC. (P) Presenting Author.
9:20	4	**Log 511. TAILORING THE MICROSTRUCTURE OF UO2 FUEL CANDIDATES FOR INTENTIONAL FORENSICS.** Finkeldei, S.C. (1,P); Connor, T. (1); Hunt, R.D. (2). (1) The Unviersity of California, Irvine. (2) Oak Ridge National Laboratory. (P) Presenting Author.
9:40		**Coffee Break**
10:00	5	**Log 484. RADIOLOGICAL DISPERSAL DEVICE (RDD) PARTICLE GENERATION FOR POST-DISPERSAL FORENSIC METHOD DEVELOPMENT - THE FIRST STEP.** Totland, M.(1,P); Helal, A.(2); Dimayuga, I.(1); Chaudhuri, A.(1); Carrie, J.(1); Maach, S. (2). (1) Canadian Nuclear laboratories. (2) Canadian Explosives Research Laboratory. (P) Presenting Author.
10:20	6	**Log 286. FEEDSTOCK-PROCESSING-STRUCTURE CORRELATIONS FOR TAGGED UO2 TO SUPPORT INTENTIONAL FORENSIC TECHNOLOGIES.** Ulrich, T.L.(1,P); Kercher, A.K.(1); Wilson, B.A.(1); Sadergaski, L.R.(1); Spano, T.L.(1); Shields, A.E. (1); Nelson, A.T.(1); Scott, S.M.(2); Wellons, M.S.(2). (1) Oak Ridge National Laboratory (2) Savannah River National Laboratory. (P) Presenting Author.
10:40	7	**Log 320. FEASIBILITY OF EARLY FUEL CYCLE TAGGANT INCORPORATION FOR INTENTIONAL FORENSICS.** Spano, T.L. (P)(1), Ulrich, T.L.(1); Kercher, A.(1); Sadergaski, L.(1); Shields, A.E.(1) (1) Oak Ridge National Laboratory (P) Presenting Author.
11:00	8	**Log 322. INTEGRAL FUEL PERFORMANCE EVALUATION OF MATERIAL PROPERTIES AFFECTED BY FORENSIC TAGGANTS.** Cheniour, A.(1,P); Wilson, B.(1); Sweet, R.T.(1); Nelson, A.T.(1); Shields, A.E.(1). (1) Oak Ridge National Laboratory. (P) Presenting Author.
11:30-1		**Lunch break followed by afternoon sessions**

Session B (continued)

1:00 (30 min)	9	**Log 319. STABLE ISOTOPE TAGGANTS OF NUCLEAR FUELS.** Rolison, J.M.(1), Shollenberger, Q.R.(1,P), Said, M.(1), Marks, N.E.(1). (1) Lawrence Livermore National Laboratory
1:30	10	**Log 536. IDENTIFYING AND QUANTIFYING FORENSIC TAGGANTS IN URANIUM METAL SAMPLES.** Bartlett, J.H. (1); Boland, K.S. (1); Chamberlin, R.M. (1,P); Emberley, W.C. (1); Erickson, K.A. (1); Kral, G.A. (1); Rearick, M.S. (1) Los Alamos National Laboratory (P) Presenting Author
1:50	11	**Log 451. UNDERSTANDING TRACE METAL TAGGANT DISTRIBUTION IN OXIDE AND METALLIC URANIUM MATRICES.** Said, M.(1, P); Marks, N.E.(1); Garza, E.V.(1); Ramon, C.E.(1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
2:10	12	**Log 541. OPTICALLY-READABLE ALD-DEPOSITED SURFACE MARKINGS FOR INTENTIONAL FORENSICS.** Condon, N.J. (1, P); Laudadio, E.D. (1); Jamison, L. (1); Mouche, P.A. (1); Elam, J.W. (1); Sun, C.; Mane, A.U. (1); Yacout, A.M. (1); Shelly Kelly (1)D. (1) Argonne National Laboratory
2:30	13	**Log 283. EXERCISE CELESTIAL SKÓNIS: A READOUT FROM THE SIXTH AND LARGEST MATERIALS EXERCISE OF THE NUCLEAR FORENSICS INTERNATIONAL TECHNICAL WORKING GROUP (ITWG).** Schwantes, J.M. (1,2,P); Corbey, J.F.(1); Marsden, O.(2,3); (1) Pacific Northwest National Laboratory. (2) Exercise Task Group Co-Chair, Nuclear Forensics International Technical Working Group. (3) AWE. (P) Presenting Author.
2:50	14	**Log 262. ARCANA: THE NATIONAL NUCLEAR MATERIALS AND SIGNATURES DATABASE.** Robel, M. (1,P); Marks, N. E. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
3:30-5		**Poster Session**

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

ALL DAY MONDAY IN BALLROOM B

ORGANIZED BY PAVEL POVINEC, UNIVERSITY OF BRATISLAVA, SLOVAKIA; PAULA CABLE-DUNLAP, OAK RIDGE NATIONAL LABORATORY, USA

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 468. IDENTIFICATION, ISOLATION, AND ANALYSIS OF FUKUSHIMA-DERIVED MICROPARTICLES.** Macsik, Z.(1); Hudston, L.A.(1); Wurth, K.N.(1); Meininger, D.(1); Jesinghaus, C. (1,2), Tenner, T.J.(1); Naes B.E. (1); Shozugawa, K. (3); Steiner, R.E. (1); Steinhauser, G. (1,2,P). (1) Los Alamos National Laboratory. (2) Leibniz University Hannover. (3) The University of Tokyo. (P) Presenting Author.
8:40	2	**Log 530. NEW HORIZONS IN MICRO PARTICLE FORENSICS: ACTINIDE IMAGING AND DETECTION OF Pu-238 AND Am-242M IN HOT-PARTICLES.** Bosco,H (1); Hamann,L (1); Kneip,N (2); Raiwa,M (1), vanEerten,D(1); Weiss,M(1); Wendt,K(2); Walther,C(1,P) 1 Leibniz University Hannover. 2 Johannes Gutenberg-University Mainz. (P) Presenting Author.
9:00	3	**Log 485. STABLE CHLORINE ISOTOPE MEASUREMENTS OF ASTROMATERIALS USING THE MODIFIED MIDDLETON SOURCE OF AN ACCELERATOR MASS SPECTROMETER.** Tyler Anderson(1,P); Alan Hidy(2); Jeremy W. Boyce(1); Francis M. McCubbin(1); Scott Tumey(2); Jordyn-Marie Dudley(3); Nikole C. Haney(3); Gérard Bardoux(4); Magali Bonifacie(4). (1) NASA-Johnson Space Center, Mail Code XI, Houston, TX 77058, USA. (2) Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, Livermore, CA 94550. (3) Jacobs, NASA-Johnson Space Center, Mail Code XI3, Houston, TX 77058, USA. (4) Université de Paris, Institut de Physique du Globe de Paris, CNRS, F-75005 Paris, France. (P) Presenting Author.
9:20	4	**Log 341. PRODUCTION AND CHARACTERIZATION OF STANDARD PARTICLES FOR RL-SNMS CALIBRATION.** Bister, S.(1); Hanemann, P.(1,P); Raiwa, M.(1); Reinhard, S.(1); van Eerten, D.(1); Walther, C.(1). (1) Institute of Radioecology and Radiation Protection, Leibniz University Hannover
9:40		**Coffee break**
10:00	5	**Log 454. SIMULTANEOUS MEASUREMENT OF Sr, Zr, AND Mo ISOTOPES IN SiC STARDUST GRAINS USING RIMS.** Shulaker, D.Z.(1,P); Ong, W.J.(1); Trappitsch, R.(2); Savina, M.R.(1). (1) Nuclear and Chemical Sciences Division, Lawrence Livermore National Laboratory. (2) Department of Physics, Brandeis University. (P) Presenting Author.
10:20	6	**Log 368. OPTIMIZATION OF A hBN-BASED NEUTRON RADIATION DETECTOR ARCHITECTURE FOR SPACE APPLICATIONS.** Almatouq, F.A.(1,P); Vira, A.(1); Connolly, P.(1); Jiang, Z.(1); First, P.N.(1); Orlando, T.M.(1). (1) Georgia Institute of Technology. (P) Presenting Author.
10:40	7	**Log 306. ISOTOPIC URANIUM PARTICLE ANALYSIS BY LG-SIMS FOR NUCLEAR SAFEGUARDS PURPOSES.** Peres, P.(1); Choi, S.(1); Defouilloy, C.(1); Fernandes F.(1); Vuillaume, A.(1,P); Jacobson, D.(2). (1) CAMECA Gennevilliers, France (2) CAMECA Inc., US (P) Presenting Author.

11:00	8	**Log 230. UNCERTAINTY BUDGET FOR URANIUM ISOTOPE RATIO ANALYSIS USING THE LS-APGD IONIZATION SOURCE COUPLED TO AN ORBITRAP MS.** Goodwin, J.V. (1); Manard, B. T. (2); Ticknor, B.W. (2), K.T. Rogers (2), C.R. Hexel (2), Cable-Dunlap, P. (2); Marcus, R. Kenneth (1,P). (1) Clemson University. (2) Oak Ridge National Laboratory
11:20-1		**Lunch break followed by afternoon sessions**
		Session C (continued)
1:00 (30 min)	9	**Log 301. IMPROVEMENTS TO LIQUID SCINTILLATOR BACKGROUND CONTRIBUTIONS FOR ULTRA-LOW BACKGROUND LIQUID SCINTILLATOR COUNTING.** Lyons, S.M.(1,P), Arnquist, I.J.(1), H.O. Back (1), M. Bliss (1), M. Bronikowski (2), di Vacri, M.L.(1), Edwards, E.R.(1), Hackett, B.(1), Hoppe, E.W.(1), Rocco, N.D.(1), Rosero, R.(3), Seifert, A.(1), Swindle, A.(2), Yeh, M.(3). (1) Pacific Northwest National Laboratory. (2) Savannah River National Laboratory. (3) Brookhaven National Laboratory.
1:30	10	**Log 288. HIGH SELECTIVE RADIOCHEMISTRY OF CAESIUM FOR THE DETERMINATION OF THE $^{135}Cs/^{137}Cs$ RATIO IN LARGE SOIL AND SEDIMENT SAMPLES.** Magré, A.(1,P); Boulet, B.(1); Pourcelot, L.(2); Roy-Barman, M.(3); Ardois, C.(1). (1) Laboratoire de métrologie de la radioactivité dans l'environnement (PSE-ENV/SAME/LMRE) (2) Laboratore d'étude et d'expertise sur la radioactivité de l'environnement (PSE-ENV/SEREN/LEREN). (3) Laboratoire des sciences du climat et de l'environnement (LSCE-IPSL). (P) Presenting Author.
1:50	11	**Log 443. SEQUENTIAL SEPARATION AND MEASUREMENT OF RADIOCESIUM AND PLUTONIUM IN NORTH PACIFIC OCEAN SEAWATERS.** Kaizer, J.(1,P); Aoyama, M.(2,3); Bujdoš, M.(1); Pánik, J.(1); Povinec, P.P.(1); Sýkora, I.(1); Tateda, Y.(4); Terrassi, F.(5). (1) Comenius University. (2) Fukushima University. (3) University of Tsukuba. (4) Central Research Institute of Electric Power Industry. (5) 2nd University of Naples. (P) Presenting Author.
2:10	12	**Log 207. TRACE ANALYSIS BY TRLIF, TRLIC, RIMS, INAA AND ICP-MS .** Izosimov, I.N.(1,P); Saidullaev B.D.(2); Strashnov I.(3); Vasidov A.(2). (1) Joint Institute for Nuclear Research, 141980 Dubna, Russia. (2) Nuclear Physics Institute, Tashkent, Uzbekistan. (3)The University of Manchester, School of Natural Sciences, M13 9PL, UK.
2:30	13	**Log 525. ADDRESSING FUTURE CHALLENGES IN RADIOCHEMISTRY WITH HIGH PERFORMANCE COMPUTING.** Penchoff, D.A. (P) (1,2); Peterson, C.C (3), Valeev, E. (4); Benny, P. (5) Bosilca, G. (1); Harrison, R.J. (6). (1) Innovative Computing Laboratory, The University of Tennessee. (2) Department of Nuclear Engineering, The University of Tennessee. (3) Office of Advanced Research Computing, University of California Los Angeles. (4) Department of Chemistry, Virginia Polytechnic Institute. (5) Isotope Science and Engineering, Oak Ridge National Laboratory. (6) Institute for Advanced Computational Science, Stony Brook University. (P) Presenting Author.
2:50	14	**Log 367. CLIMATE CHANGE STUDIES WITH ACCELERATOR MASS SPECTROMETRY.** Povinec, P.P. (1,P); Kaizer, J. (1). (1) Comenius University in Bratislava.
3:30-5		**Poster Session**

SESSION D: NEUTRON IMAGING TECHNOLOGIES AND APPLICATIONS

ALL DAY MONDAY MORNING IN BALLROOM C

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

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 605. Unique Capabilities and Applications of Neutron Counting MCP/Timepix Detectors in Neutron Imaging and Diffraction Experiments.** A.S. Tremsin (1) in collaboration with many neutron imaging facilities. (1) The Unviersity of California at Berkeley.
8:40	2	**Log 235. OPTIMIZATION OF A REACTOR BASED FAST NEUTRON IMAGING SYSTEM.** Bisbee, M.B.(1)(3)(P); Oksuz, I.(1); Cao, L.R.(1); Cherepy, N.(2); Champley, K.(2). (1) The Ohio State University. (2) Lawrence Livermore National Lab. (3) DOE Nuclear Energy University Program Fellow. (P) Presenting Author.
9:00	3	**Log 255. IMAGE FUSION FOR NEUTRON IMAGING APPLICATIONS.** Chuirazzi, W.C. (1); Kane, J.J (1); Craft, A.E. (1,P); Schulthess, J.L (1). (1) Idaho National Laboratory
9:20	4	**Log 281. AUTOMATED FAST NEUTRON TOMOGRAPHY FOR COMPLEX OBJECTS AT A 500 KW RESEARCH REACTOR.** Oksuz, I.(1, P); Bisbee, B.(1, 3); Cherepy, N.(2); Hall, J.(2); Cao, L.(1). (1) The Ohio State University. (2) Lawrence Livermore National Laboratory. (3) DOE Nuclear Energy University Program Fellow. (P) Presenting Author.
9:40		**Coffee break**
10:00	5	**Log 302. MASS TRANSPORT IN RENEWABLE ENERGY DEVICES BY NEUTRON IMAGING.** Borgschulte, A. (1,P); Nikolic, M. (1); Cesarini, A. (1); Billeter, E. (1); Terreni, J (1); Fumey, B. (1); Baldini, L. (1); Kaestner, A. (2); Trtik, P (2). (1) Empa, Swiss Federal Laboratories for Materials Science and Technology. (2) Paul Scherrer Institut, Laboratory for Neutron Scattering and Imaging.
10:20	6	**Log 303. HIGH THROUGHPUT HYDROGEN ANALYSIS OF ENERGY MATERIALS.** Nikolic, M. (1); Cesarini, A. (1); Billeter, E. (1); Terreni, J (1); Borgschulte, A. (1,P); Kaestner, A. (2); Trtik, P (2). (1) Empa, Swiss Federal Laboratories for Materials Science and Technology. (2) Paul Scherrer Institut, Laboratory for Neutron Scattering and Imaging.
10:40	7	**Log 221. THERMAL NEUTRON MEASUREMENTS WITH AN UNPOWERED, MINIATURE, SOLID-STATE DEVICE.** Hossain, T. (1,P); Fullwood, C. (1); Flanagan, W. (1,2); Hedlesky, P. (2); Rabaey, J. (2);Block, S.(2); Medcalf, A. (2); Tipping, T (3) . (1) Cerium Laboratories. (2) The University of Dallas. (3) The University of Texas at Austin Nuclear Engineering Teaching Laboratory. (P) Presenting Author.
11:00	8	**Log 432. USE OF NEUTRON RADIOGRAPHY FOR MEASUREMENTS IN CONCRETE.** Ghantous, R.M. (1, P); Weiss, J. W. (1); Reese, S. R. (2); (1) Oregon State University, Civil and construction engineering Department. (2) Oregon State University, Nuclear and Science Engineering Department. (P) presenting Author.
11:30-1		**Lunch break followed by afternoon sessions**

Session D (continued)

1:00 (30 min)	9	**Log 265. NEUTRON TOMOGRAPHY OF A HIGHLY RADIOACTIVE SINQ SPALLATION TARGET ROD.** Trtik, P. (1,P); Welte, J. (1); Yetik, O. (1); Grünberger, S. (1); Kalt, A. (1); Hovind, J. (1); Blau, B. (1); (1) Paul Scherrer Institut, Switzerland
1:30	10	**Log 538. NEUTRON RADIOGRAPHY AT LANSCE: INTERROGATION AND CHARACTERIZATION OF MATERIALS FOR NEXT GENERATION NUCLEAR REACTOR DESIGNS .** Long, A.M. (1); Balke, T. (1); Jackson, J.M. (1); Luther, E. (1); Mehta, V. (1); Monnreal, M. (1); Parker, S.S. (1) ; Shivprasad, A.P. (1); Trellue, H. (1); Tremsin, A. (2); Vogel, S.C. (1). (1) Los Alamos National Laboratory; (2) University of California, Berkeley
1:50	11	**Log 606. HYPERSPECTRAL NEUTRON CT WITH MATERIAL DECOMPOSITION.** Balke, T. (1,2,P); Long, A. M. (2); Vogel, S. C. (2); Wohlberg, B. E. (2); Bouman, C. A. (1). (1) Purdue University. (2) Los Alamos National Laboratory
2:10	12	**Log 542. DIGITAL NEUTRON IMAGING OF TRANSIENT IRRADIATED NUCLEAR FUELS.** Craft, A.E. (1,P); Schulthess, J.L. (1); Papaioannou, G.C. (1); Chuirazzi, W.C. (1); Kane, J.J. (1); Cordes, N.L. (1). (1) Idaho National Laboratory
2:30	13	**Log 566. PVT SCINTILLATOR CHARACTERIZATION AND FAST NEUTRON COMPUTED TOMOGRAPHY AT IDAHO NATIONAL LABORATORY'S NEUTRON RADIOGRAPHY REACTOR.** Oksuz, I.(1, P); Chuirazzi, W.(2); Cao, L.(1); Cherepy, N.(3); Craft, A. (2). (1) The Ohio State University. (2) Idaho National Laboratory. (3) Lawrence Livermore National Laboratory. (P) Presenting Author.
2:50	14	**Log 600. PULSED NEUTRON CHARACTERIZATION OF IRRADIATED FUELS AT LANSCE.** Vogel, Sven C. (1,P); Balke, Thilo (1,2); Bouman, Charles A. (2); Capriotti, Luca (3); Harp, Jason M. (4); Long, Alexander M. (1); Schaper, Danielle C. (1); Tremsin, Anton S. (5); Wohlberg, Brendt E. (1); Larson, Eric J. (1); Craft, Aaron E. (3); Gross, Brian J. (3); Carver, D. Travis (1); Angell, James R. (3); Mehta, Vedant K. (1). (1) Los Alamos National Laboratory. (2) Purdue University. (3) Idaho National Laboratory. (4) Oak Ridge National Laboratory. (5) University of California at Berkeley. (P) Presenting Author.
3:10	15	**Log 251. NEW NEUTRON IMAGING DETECTORS USING ASTRONOMY CAMERAS AND 3D PRINTED DETECTOR HOUSINGS.** Burkhard Schillinger (1,P), Tobias Juenger (1), Tobias Neuwirth (2), Simon Sebold (1). (1) Heinz Maier-Leibnitz Zentrum (FRM II), Technische Universitaet Muenchen, Germany.
3:30	16	**Log 252. NEW MEASUREMENTS ON BORATED NEUTRON IMAGING SCREENS.** Burkhard Schillinger (1,P), Bill Chuirazzi (2), Steven Cool (3), Aaron Craft (2), Alessandro Tengattini (4). (1) Heinz Maier-Leibnitz Zentrum (FRM II), Technische Universitaet Muenchen, Germany. (2) Idaho National Laboratory, USA. (3) DMI/Reading Imaging, Reading, USA. (4) Institut Laue-Langevin, Grenoble, France
3:30-5		**Poster Session**

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

ALL DAY MONDAY IN BALLROOM D

ORGANIZED BY E. BOND, LOS ALAMOS NATIONAL LABORATORY, USA AND RALF SUDOWE, COLORADO STATE UNIVERSITY, USA.

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 220. PREPARATION OF HIGH SPECIFIC ACTIVITY ACTINIDE TARGETS BY VAPOR DEPOSITION.** Loveland,W., Pica,A., Chemey,A.(P), Oregon State University
8:40	2	**Log 224. CHARACTERIZATION OF A SODIUM BISMUTHATE PAN RESIN FOR THE SEPARATION OF AMERICIUM FROM CURIUM.** Labb, S.A.(1,P); Bombard, A.(2); Bond, E.M.(3); Sudowe, R.(1). (1) Colorado State University. (2) TrisKem International. (3) Los Alamos National Laboratory.
9:00	3	**Log 263. SMALL-BATCH PLUTONIUM METAL CREATION.** Ferrier, M. G., Henderson, R. A. (P), Lawrence Livermore National Laboratory
9:20	4	**Log 380. THE DISSOLUTION AND PURIFICATION OF IRIDIUM FROM IRRADIATED IRIDIUM FOILS USING POTASSIUM HYDROXIDE AND POTASSIUM NITRATE FUSION AND ION EXTRACTION CHROMATOGRAPHY .** Marenco, A.M.(1,P); Bond, E.M.(1); Rusev, G.(1); Bredeweg, T.A.(1). (1) Chemistry Division, Los Alamos National Laboratory. (P) Presenting Author.
9:40		**Coffee break**
10:00	5	**Log 381. IMPROVEMENTS IN IRIDIUM TARGET CHEMISTRY.** Marenco, A.M.(1,P); Bond, E.M.(1); Rusev, G.(1); Bredeweg, T.A.(1). (1) Chemistry Division, Los Alamos National Laboratory. (P) Presenting Author.
10:20	6	**Log 383. SCALE MODELING OF FOIL IRRADIATIONS AT WSU'S TRIGA WITH SENSITIVITY/UNCERTAINTY ANALYSIS.** Hinrichs, K.A.(1,P); Perfetti, C.M. (2). (1) Los Alamos National Laboratory. (2) University of New Mexico. (P) Presenting Author.
10:40	7	**Log 488. MEMBRANE ADSORBERS WITH COVALENTLY TETHERED DIGLYCOLAMIDE LIGANDS FOR ACTINIUM-225 PURIFICATION.** Sibley, M.M.(1,P); Sepesy, M.R.(1); Scott, J.V.(1); Kozar, T.J.(1); Ford, A.G.(1); Yen, T.(1); Johnson, A.B.(1); Duval, C.E.(1). (1) Case Western Reserve University. (P) Presenting Author.
11:00	8	**Log 204. APPLICATIONS OF A DUAL COLUMN TECHNIQUE IN ACTINIDE SEPARATIONS.** MITING DU(P)(1) (1) OAK RIDGE NATIONAL LABORATORY
11:30-1		**Lunch break followed by afternoon sessions**

Session E (continued)

1:00 (30 min)	9	**Log 422. NOVEL APPROACHES OF ACTINIDE TARGET MAKING FOR NUCLEAR SCIENCE MEASUREMENTS.** Khachatur Manukyan. University of Notre Dame.
1:30	10	**Log 540. SOLID-PHASE ISOTOPE HARVESTING OF ^{88}Zr.** Jake Bence (P,1,2), Samridhi Satija (3), Katharina Domnanich (3), John Despotopulos (4), Kelly Kmak (4), Paige Abel (3), Hannah Clause (3), Scott Essenmacher (3), Chloe Kleinfeldt (3), Wesley Walker (3), Colton Kalman (3), Chirag Vyas (3,5), Nicholas Scielzo (4), Tashi Parsons-Davis (4), Gregory Severin (3,5), Jennifer Shusterman (1,2,4) (1) Hunter College of the City University of New York (2) Graduate Center of the City University of New York, (3) Department of Chemistry, Michigan State University, East Lansing, Michigan (4) Lawrence Livermore National Laboratory, (5) National Superconducting Cyclotron Laboratory, East Lansing, Michigan
1:50	11	**Log 572. PRODUCTION AND SEPARATION OF BE-7 FOR ION-SOURCE PREPARATION AT THE NATIONAL SUPERCONDUCTING CYCLOTRON LABORATORY.** Satija, S.(1,2,P); Domnanich, K.A.(1,2); Chaple, I.F.(3); Shefali, F.(3); Cingoranelli, S.J.(3); Severin, G.W.(1,2); Lapi, S.E.(3); Sumithrarachchi, C.(2); Bollen, G.(2). (1) Michigan State University. (2) National Superconducting Cyclotron Laboartory. (3) The University of Alabama at Birmingham. (P) Presenting Author.
2:10	12	**Log 588. RADIOCHEMICAL SEPARATION OF 48V FROM ALPHA-IRRADIATED NATSC FOIL.** Essenmacher, S.D.(1,2,P); Satija, S.(1,2); Kleinfeldt, C.R.(1,2); Domnanich, K.A.(1,2); Vyas, C.K.(2); Severin, G.M.(1,2). (1) Michigan State University. (2) Facility for Rare Isotope Beams. (P) Presenting Author.
2:30	13	**Log 523. RADIOCHEMICAL SEPARATION OF POLONIUM-210 FROM HIGH PURITY COPPER - METHODOLOGY AND DETECTION LIMITS.** Mroz, T.(1,P); Brudecki, K.(2); Wojcik, M.(1); Zuzel, G.(1); (1) Jagiellonian University, Institute of Physics. (2) Institute of Physics Polish Academy of Sciences.
2:50		**Log 590. Np-237 FISSION PRODUCT YIELDS INDUCED FROM THE GODIVA IV CRITICAL ASSEMBLY.** Harke, J.T.(1,P); Tamashiro, A.S.(2); Burcher, S.P.(1), Padgett, S.W.(1), Zhao, P.(1), Pierson, B.(3); Gharibyan, N.(1); Goda, J.(4); Greenwood, L.(3); Hayes, D.(4), Hutchinson, J.(4); Harward, N.(1); Roberts, K.(1); Slavik, G.(1); Yap-chiongco, P.(1); Walker, J.(4); Bredeweg, T.A.(4). (1) Lawrence Livermore National Laboratory. (2) Oregon State University. (3) Pacific Northwest National Laboratory. (4) Los Alamos National Laboratory.
3:30-5		**Poster Session**

Special Monday Evening Session

FUTURE CHALLENGES FOR ANALYTICAL AND RADIOANALYTICAL CHEMISTRY

MONDAY EVENING (5:30 – 8:00) IN BALLROOMS 1,2, 3 AND 4

ORGANIZED BY KENNETH INN (NIST, RETIRED), STEVEN BIEGALSKI (GEORGIA INSTITUTE OF TECHNOLOGY), L. RAYMOND CAO (OHIO STATE UNIVERSITY) AND DEREK HAAS (UNIVERSITY OF TEXAS AT AUSTIN)

Please see the flyer distributed by e-mail and available at the conference registration desk for additional information.

TIME	Ballroom	Presentation Title and Speaker
4:00-5:30	Herb Kane Breezeway	**POSTER SESSION AND MIXER WITH LIGHT PUPUS AND DRINKS**
5:30-8:00	A	**Nuclear Security** Led by Derek Haas (University of Texas at Austin) Panel Speakers: TBA
5:30-8:00	B	**Nuclear Test Monitoring** Led by Harry Miley (PNNL) Panel Speakers: Paul Saey (IAEA), Ted Bowyer (PNNL), Mathias Aldener (FOI), Sylvain Topin (CEA)
5:30-8:00	C	**Nuclear Power** Led by Steven Biegalski (Georgia Institute of Technology) Panel Speakers: David Diprete (SRNL), Michal Simpson (University of Utah), Tim Head (Abilene Christian University), Stephen Scott Parker (LANL); Aaron Craft (INL)
5:30-8:00	D	**Earth Ecology, Space Exploration, Health, Computation & AI** Led by Raymond Cao (Ohio State University) Panel Speakers: Deborah Penchoff (University of Tennessee), Ken Inn (NIST, Retired) and others TBA

Special event sponsored by Ohio State University, University of Texas, and Georgia Institute of Technology that starts with an opportunity for attendees view posters and mix with some light pupus and drinks from 3:30-5:30 followed by four interactive, panel style parallel sessions will be held to discuss long-term, big challenges that face radioanalytical and nuclear chemistry. It is anticipated there will be 2-3 panel presentations within each session to help stimulate discussion.

Session to look at future applications and opportunities for radioanalytical chemistry, for example:

- Nuclear power plant decontamination and decommissioning
- Medical isotope production and applications for health care
- Drinking water production
- Isotope production and power for remote resource mining, deep space exploration
- Nuclear battery (e.g., radioisotope thermoelectric generator or betavoltaic) for power robots and AI units with large power density, free-of-maintenance, and long operating life

This effort would require the presenters and audience to look down the road several decades, if not longer, to anticipate emerging and future needs. This would also mean thoughts could eventually go into grooming future generations of radiochemists to take on these challenges.

SESSION F. ACTINIDE MASS SPECTROMETRY FOR TREATY MONITORING AND NUCLEAR FORENSICS

ALL DAY TUESDAY IN BALLROOM A

ORGANIZED BY FABIEN POINTURIER, CEA, FRANCE; ROBERT STEINER, LOS ALAMOS NATIONAL LABORATORY, USA; TARA KELL, CNSC, CANADA; DAVID CHILD, ANSTO, AU

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 298. PARTICLE ANALYSIS IN NUCLEAR FORENSIC INVESTIGATIONS: THE SIGNIFICANCE OF SOURCE COMPOSITION AND SAMPLE SIZE.** Inglis, J.D. (1,P); Reinhard, A.A. (1); Tenner, T.J. (1); LaMont, S.P. (1); Steiner, R.E. (1); Wende, A.W. (1); Fisher, W.S (1). (1) Chemistry Division, Nuclear and Radiochemistry Group, Los Alamos National Laboratory, Los Alamos
8:40	2	**Log 342. DEVELOPMENT OF ENGINEERED, NANO-POROUS ION EMITTERS (NANO-PIES) FOR ACTINIDE ANALYSIS BY TIMS.** McHugh, K.C. (1, P); Makovsky, K.A. (1); Barpaga, D. (1); Sinwell, M.A. (2); Krogstad, E.J. (1); Brown, C.F. (1). (1) PAcific Northwest National Laboratory. (2) University of Iowa. (P) Presenting Author.
9:00	3	**Log 412. MEASUREMENT OF Pu-239 IN AUTOPSY BRAIN TISSUE FROM AN OCCUPATIONALLY EXPOSED WORKER USING ICP-MS.** Wegge, D.L. (1,P); Tolmachev, S.L. (2); Brockman, J.D. (1,3). (1) The University of Missouri. (2) United States Transuranium and Uranium Registeries. (3) MU Research Reactor. (P) Presenting Author.
9:20	4	**Log 352. ELUCIDATING MOLECULAR SPECTRAL SIGNATURES IN NANOSECOND LASER-INDUCED PLUTONIUM SURROGATE PLASMAS.** Kwapis, E.H. (1,P); Hartig, K.C. (1); (1) University of Florida
9:40		**Coffee break**
10:00	5	**Log 420. CHARACTERIZATION OF ISOTOPE ABUNDANCE RATIOS OF Pu AND MOX BEARING-PARTICLES BY SECONDARY ION MASS SPECTROMETRY.** Diacre, A. (1,2); Fauré, A.L. (1); Cornaton, M. (1); Pointurier, F. (1,P); Evrard, E. (2). (1) CEA, DAM, DIF, F-91297 Arpajon, France. (2) Laboratoire des Sciences du Climat et de l'Environnement (LSCE/IPSL), Unité Mixte de Recherche 8212 (CEA/ CNRS/UVSQ), Université Paris-Saclay, Gif-sur-Yvette, France.
10:20	6	**Log 231. FIRST MASS SPECTROMETRIC CHARACTERIAZATION OF Pu USING THE LS-APGD MICROPLASMA ION SOURCE AND ORBITRAP MASS ANALYZER.** Goodwin, J.V. (1); Manard, B. T. (2); Ticknor, B.W. (2); Cable-Dunlap, P. (2); C. R. Hexel (2), B. D. Roach (2), S. C. Metzger (2), Marcus, R. Kenneth (1,P). (1) Clemson University. (2) Oak Ridge National Laboratory
10:40	7	**Log 261. UTILITY OF ATONA AMPLIFIERS FOR ISOTOPIC ANALYSES BY THERMAL IONIZATION MASS SPECTROMETRY.** Reinhard, A.A.(1,P); Inglis, J.D. (1); Kara, A.H.S. (1); Goldstein,S.J.(1); Boggs, M.A. (1); Lopez, D.M. (1); LaMont, S.P. (1); Steiner, R.E. (1) (1) Los Alamos National Laboratory, Chemistry Division (P) Presenting Author.
11:00	8	**Log 337. ACTINIDE AND FISSION PRODUCT ANALYSIS OF SPENT NUCLEAR FUEL PARTICLES.** M. R. Savina(1,P), B. H. Isselhardt(1), D. Z. Shulaker(1), M. Robel(1). (1)Lawrence Livermore National Laboratory. (P)Presenting Author.
11:30-1		**Lunch break followed by afternoon sessions**

Session F (continued)

1:00 (30 min)	9	**Log 448. PRODUCTION AND CHARACTERIZATION OF NBL PLUTONIUM ISOTOPIC STANDARD CRM137A.** Parsons-Davis, T.(1, P); Henderson, R.(1); Holland, M.(2); Holliday, K.(1); King, C.(1); Mason, P.(2); Tourville, A.(2); Watters, R.(2); Williams, R.W.(1); Wimpenny, J.(1); (1) Lawrence Livermore National Laboratory. (2) New Brunswick Laboratory Program Office. (P) Presenting Author
1:30	10	**Log 260. MEASUREMENTS OF 135/137 CESIUM RATIOS IN VARIOUS FORMS OF TRINITITE BY THERMAL IONIZATION MASS SPECTROMETRY.** Boggs, M.A.(1); Reinhard, D.(1); Inglis, J. (1) Lee, G.(1); Margiotta, C.(1). (1) Los Alamos National Laboratory
1:50	11	**Log 327. STABLE NEODYMIUM ISOTOPIC COMPOSITION OF NUCLEAR DEBRIS SAMPLES.** Patton, G.M. (1,P); Hanson, S.(1); Sanborn, M. (1); Inglis, J. (1). (1) Los Alamos National Laboratory.
2:10	12	**Log 428. MATRIX-ASSISTED IONIZATION MASS SPECTROMETRY FOR URANIUM MEASUREMENT IN FIELD ENVIRONMENTS.** Danielle Mannion (1,P), Kyle Samplerton (1), Elizabeth LaBone (1), Haley Lawton (1), Joseph Mannion (1), Wendy Kuhne (1), Binod Rai (1), Matthew Wellons (1). (1) Savannah River National Laboratory, (P) Presenting author.
2:30	13	**Log 471. EVALUATING THE QQQ-ICP-MS FOR UNDERSTANDING ACTINIDE REACTIVITY.** French, A.D (1) Melby, K. (1) Arnquist, I.J (1) Eiden, G (1) Beck, C (1,P) Seiner, B (1) Harouaka, K. (1) Pacific Northwest National Laboratory
2:50	14	**Log 584. METHOD DEVELOPMENT FOR ICP-MS MEASUREMENTS OF U AND Np IN Pu METAL.** Bartlett, J.H. (P), Aragon, S.M.
3:10	15	**Log 413. METHOD FOR MEASURING Pu, Am, AND U IN HAIR AND NAILS OF OCCUPATIONALLY EXPOSED WORKERS THROUGH EXTRACTION CHROMATOGRAPHY AND MC-ICP-MS.** Wegge, D.L. (1,P); Tolmachev, S.L. (2); Brockman, J.D. (1,3). (1) The University of Missouri. (2) United States Transuranium and Uranium Registeries. (3) MU Research Reactor. (P) Presenting Author.
3:30-5		**Poster Session**

SESSION G: ENVIRONMENTAL RADIOACTIVITY- FIELD, LABORATORY AND MODELING STUDIES

ALL DAY TUESDAY IN BALLROOM B

ORGANIZED BY ANNIE KERSTING, LAWRENCE LIVERMORE NATIONAL LABORATORY, USA

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 272. PLUTONIUM MOBILIZATION FROM ESTRUARINE SEDIMENTS.** Balboni E.(1,P), Merino, N. (1), J. Begg (1,2), A.B. Kersting (1), M. Zavarin (1) (1) Lawrence Livermore national Laboratory; (2)AMPHOS; (P) Presenting Author.
8:40	2	**Log 270. CHARACTERISATION AND MONITORING OF UNDERGROUND LONG-LIVED CONTAMINANTS USING IN-GROUND ASSETS.** Elisio, S. (1); Joyce, J.M. (1); (1) Lancaster University (UK). (P) Elisio, S.
9:00	3	**Log 355. DIRECT SPECIATION OF RADIONUCLIDES IN PLANT PARTS: THE JOURNEY OF EUROPIUM IN SECALE CEREALE L. ANALYZED WITH MASS SPECTROMETRIC, SPECTROSCOPIC AND MICROSCOPIC TECHNIQUES.** Stadler, J.(1,P); Vogel, M.(2); Steudtner, R.(3); Damböck, T.(1); Drobot, B.(3); Walther, C.(1). (1) Leibniz University Hannover, Institute of Radioecology and Radiation Protection. (2) VKTA, Strahlenschutz, Analytik & Entsorgung Rossendorf e.V.. (3) HZDR Innovation GmbH. (P) Presenting author.
9:20	4	**Log 333. LONG-TERM AND SEASONAL CYCLING OF RADIONUCLIDES IN A MONOMICTIC POND AT SAVANNAH RIVER SITE, S.C.** Wasserman,N.L.,(1, P); Merino,N.(1); Coutelot,F.(2); Kersting,A.B.(1); Powell,B.A.(2); Zavarin,M(1). (1) Glenn T. Seaborg Institute, Lawrence Livermore National Laboratory. (2) Department of Environmental Engineering and Earth Sciences, Clemson University
9:40		**Coffee break**
10:00	5	**Log 335. GEOCHEMICAL CHARACTERIZATION OF WATER MASSES AND THEIR ROLE IN Cs-137 DISTRIBTUION AROUND THE EMPEROR SEAMOUNTS IN THE NW PACIFIC OCEAN.** Dulai, H. (1,P), (1) University of Hawai'i at Manoa
10:20	6	**Log 570. COMPARISON OF THE ENVIRONMENTAL IMPACTS OF NUCLEAR AND COAL-FIRED POWER PLANTS BY EMISSIONS OF RADIONUCLIDES.** Wieczorek, J.(1,2,P); Steinhauser, G.(1); Blenke, T.(1); Zok, D.(1,3,P); Stäger, F.(1); (1) Leibniz University Hannover. (2) Faculty of Chemistry of the University of Gdansk.
10:40	7	**Log 362. SYNTHESIS AND TESTING OF FUNCTIONALIZED CLAY MATERIAL FOR THE SEQUESTRATION OF TECHNETIUM.** Maulden, E. (1,P); Gager, E. (1); Nino, J.C. (1); Pearce, C. (2); Szecsody, J.(2); Wall, N.A.(1). (1) University of Florida (2) Pacific Northwest National Laboratory
11:00	8	**Log 250. TECHNETIUM COMPLEXATION WITH HALIDES.** Nathalie A. Wall (1) University of Florida
11:30-1		**Lunch break followed by afternoon sessions**

Session G (continued)

1:00 (30 min)	9	**Log 419. FORMATION OF URANYL PEROXIDE CLUSTERS UNDER IONIZING RADIATION.** Felton, D.E.(1,P); LaVerne, J.A.(1); Burns, P.C.(1) (1)The University of Notre Dame.
1:30	10	**Log 354. COMPARISON OF 239Pu- and 242Pu-COLLOIDS IN THEIR STRUCTURE AND INFLUENCE OF RADIOLYSIS ON STABILITY.** Reinhard, S. (1,P); Steppert, M. (1); Hedberg, M. (2); Persson, I. (3); Ekberg, C. (2); Walther, C.(1). (1) Leibniz University Hannover, Institute of Radioecology and Radiation Protection. (2) Chalmers University of Technology, Chemistry and Chemical Engineering, Nuclear Chemistry. (3) Swedish University of Agricultural Sciences, Department of Molecular Sciences. (P) Presenting Author.
1:50	11	**Log 430. ELECTROCHEMICAL SEPARATION OF CO-60 FROM ELECTROPOSITIVE RADIONUCLIDES.** Dutheil, P.(1,2,P); Heule, M.(1); Steinegger, P.(1,2). (1) Paul Scherrer Institut (PSI). (2) Swiss Federal Institute of Technology Zürich (ETHZ).
2:10	12	**Log 498. IN-SITU IDENTIFICATION AND QUANTIFICATION OF NORM.** Zickefoose, J.K.(1,2,P); Sullivan, D.A.(1); Persson, H.(1); Ilie, G.(1); Dang, E(1). (1) Mirion Technologies. (2) University of Connecticut. (P) Presenting Author.
2:30	13	**Log 331. PHYSICOCHEMICAL PROPERTIES FOR VAPOR TRANSPORT THROUGH GEOLOGIC MATERIALS.** Elizabeth H. Denis (1), Guohui Wang (1), Anjelica Bautista (1), Nicholas L. Huggett (1), Mark L. Rockhold (1), Carlos G. Fraga (1), Michael P. Foxe (1,P), April J. Carman (1). (1) Pacific Northwest National Laboratory, Richland, WA, USA. (P) Presenting Author.
2:50	14	**Log 346. NOVEL GROSS ALPHA/BETA GROUND DEPOSTION METHOD.** Griggs, J.(1); Fournier, S. (2); Allen, M. (2,P). (1) National Analytical Radiation Environmental Laboratory. (2) Sandia National Laboratories. (P) Presenter
3:10	15	**Log 361. SILANIZATION FOR MINIMIZING CATION ADSORPTION IN SOLVENT EXTRACTION SYSTEMS.** Maulden, E. (1,P); Wall, D.E.(1); Wall, N.A.(1). (1) University of Florida
3:30-5		**Poster Session**

SESSION H: INSTRUMENTAL, PRECONCENTRATION, RADIOCHEMICIAL AND SPECIATION ACTIVATION ANALYSIS

ALL DAY TUESDAY BALLROOM C

ORGANIZED BY A. CHATT, DALHOUSIE UNIVERSITY CANADA

CHAIRED BY: H.H. CHEN-MAYER, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, USA AND J.H. STERBA, WIEN, AUSTRIA

TIME	order	Presentation Title and Speaker
8:00		**HEVESY MEDAL AWARD INTRODUCTARY REMARKS BY A. CHATT, DALHOUSIE UNIVERISTY, CANADA**
8:15 (45 min)	1	**HEVESY MEDAL LECTURE. LOG 206. RADIONUCLIDE METROLOGY – CONFIDENCE IN RADIOACTIVITY MEASUREMENTS.** Pommé S (P), Joint Research Centre, Geel, Belgium.
9:00	2	**Log 268. A COMPARISON OF EXPANDED UNCERTAINTIES BY PSEUDO-CYCLIC EPITHERMAL INAA WITH ANTICOINCIDENCE COUNTING USING COMPARATOR AND K0 METHODS FOR MEASURING IODINE LEVELS IN GHANAIAN FOODS.** Nyarko, B.J.B. (1,2); Akaho, E.H.K. (2); Fletcher, J.J. (3); A. Chatt (1,P). (1) Department of Chemistry, Dalhousie University, Halifax, NS, Canada. (2) Ghana Atomic Energy Commission, P.O. Box LG80, Legon-Accra, Ghana. (3) Physics Department, University of Cape Coast, Cape Coast, Ghana. (P) Chatt, A.
9:20	3	**Log 503. EMISSION GHOST IMAGING.** Chen-Mayer, H.H. (1, P); Coakley, K.P. (1); Ravel, B. (1); Josell, D. (1); Klimov, N.N. (1); Robinson, S.M. (1); Hussey, D.S. (1). (1) National Institute of Standard and Technology. (P) Presenting Author.
9:40		**Coffee break**
10:00	4	**Log 551. Progress of Neutron Activation Analysis in Korea.** Sun, Gwang-Min;Korea Atomic Energy Research Institute, HANARO Utilization Division, Presenting Author.
10:20	5	**Log 532. PRELIMINARY RESULTS OF THE UNIVERSITY OF TEXAS NUCLEAR ENGINEERING TEACHING LABORATORY PROMPT GAMMA ACTIVATION ANALYSIS SYSTEM REDESIGN.** Beauvais, Z.S. (1,P); Charlton, W.S. (1); Andrews, M.J. (1); Payne, W.M. (1). (1) The University of Texas at Austin. (P) Presenting Author.
10:40	6	**Log 594. U-238 FISSION PRODUCT MEASUREMENT USING THE LĀPAKI γ-γ ARRAY AT OREGON STATE UNIVERSITY.** Tamashiro, A.S. (1,2,P); Harke, J.T. (2); Palmer, C.J. (1); Menn, S. (1); Reese, S. (1); Minc, L. (1) . (1) Oregon State University. (2) Lawrence Livermore National Laboratory. (P) Presenting Author.
11:00	7	**Log 236. SIMULATED NAA DATASETS FOR IMPROVED DISCRIMINATION BETWEEN CHEMICAL FINGERPRINTS.** Johannes H. Sterba (1,P). Center for Labelling and Isotope Production, TRIGA Center Atominstitut, TU Wien, Vienna, Austria.
11:30-1		**Lunch break followed by continued afternoon sessions for Session H**

Session H (continued)

1:00	8	**Log 573. NEUTRON ACTIVATION ANALYSIS APPLICATIONS WITH A MEDICAL ISOTOPE CYCLOTRON.** Duke, M.J.M. Medical Isotope and Cyclotron Facility, University of Alberta.
1:20	9	**Log 455. ELECTROCHEMICAL ENRICHMENT OF ULTRATRACE ELEMENTS FOR NEUTRON ACTIVATION ANALYSIS.** Stary, T.(1,P); Welch, J.M.(1); Sterba, J.H.(1); Mokina, V.(2); Kirchweger, V.(1). (1) Center for Labelling and Isotope Production, TRIGA Center Atominstitut, TU Wien, Vienna, Austria. (2) HEPHY - Institute of High Energy Physics, Vienna. (P) Presenting Author.
1:40	10	**Log 370. SEPARATION OF SELECT TRANSITION METALS FROM A MIXED ACTIVATION AND FISSION PRODUCT SAMPLE.** Beck, Chelsie (1,P); Herman, Staci (1) ; Warzecha, Evan (1) ; Emerson, Hilary (1) ; Stene, Riane (1) ; Haney, Morgan (1) ; Metz, Lori (1) 1. Pacific Northwest National Laboratory
2:00	11	**Log 435. SEQUENTIAL SEPARATION SCHEME FOR REFRACTORY ACTIVATION PRODUCTS.** Staci Herman, Evan Warzecha, Riane Stene, Hilary Emerson, Morgan Haney, Lori Metz, and Chelsie Beck (P). Pacific Northwest National Laboratory.
2:20	12	**Log 372. DESIGNING NOVEL CHEMICAL SEPARATIONS WITH THE USE OF DISTRIBUTION COEFFICIENTS OF NUMEROUS EICHROM RESINS.** Ward, J.L (1,P); Snow, M.S.(1) (1) Idaho National Laboratory, (P) Presenting Author
2:40	13	**Log 257. RADIOCHEMICAL EFFECTS OF THERMAL NEUTRON CAPTURE IN $Cr(TMHD)_3$.** Pichler, V.(1,P); Welch, J.M.(1); Sterba, J.H.(1). (1) Center for Labelling and Isotope Production, TRIGA Center Atominstitut, TU Wien, Vienna, Austria. (P) Presenting Author.
3:00	14	**Log 460. RADIOLABELING OF ELASTOMERS.** Sahovic, N.(1); Welch, J.M.(1P); Sterba, J.H.(1). (1) Center for Labelling and Isotope Production, TRIGA Center Atominstitut, TU Wien, Vienna, Austria. (P) Presenting Author.
3:20	15	**Log 486. CHARACTERIZATION OF THE NEW PROMPT GAMMA NEUTRON ACTIVATION ANALYSIS FACILITY AT THE DALAT RESEARCH REACTOR.** Nguyen Canh Hai1, Nguyen Nhi Dien1, Vuong Huu Tan2, Tran Tuan Anh1, Pham Ngoc Son1, Phan Bao Quoc Hieu1, Nguyen Canh Hai Tran1, Ho Huu Thang1, Tuong Thi Huong1. 1) Dalat Nuclear Research Institute, 01 Nguyen Tu Luc Street, Dalat, Vietnam 2) Vietnam Atomic Energy Society
3:30-5		**Poster Session**

SESSION I: ADVANCES IN THE NUCLEAR FUEL CYCLE AND IMPROVEMENTS IN HIGH ACTIVITY SEPARATIONS METHODS INCLUDING ACTINIDE, LANTHANIDE, AND FISSION PRODUCTS

ALL DAY TUESDAY IN BALLROOM D

ORGANIZED BY DAVID DIPRETE, SRNL, USA, AND RENE BRENNETOT, CEA, FRANCE.

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 406. DESIGN AND VALIDATION OF A GAMMA-RAY SCANNING SYSTEM FOR MEASURING IRRADIATED NUCLEAR FUEL .** Ocampo Giraldo, L.A. (1,P); Holschuh, T.V. (1); Thompson, S.J. (1); Hix, J.D. (1); Johnson, J.T. (1); Chichester, D.L. (1). Idaho National Laboratory. (P) Presenting Author.
8:40	2	**Log 385. TOTAL MERCURY ANALYSIS IN RADIOACTIVE WASTE CONTAINING METHYL MERCURY.** Looney, B.B. (1); Brown, L.W. (1); Jones, M.A. (1); White, T.L. (1, P); (1) Savannah River National Laboratory. (P) Presenting Author.
9:00	3	**Log 607. RADIOCESIUM ANALYSES AT THE SAVANNAH RIVER SITE.** DiPrete, D.P(1,P), DiPrete, C.C. (1), Jones, M. A.(1), Fenker, K. M.(1) (1) Savannah River National Laboratory. (P) Presenting Author.
9:20	4	**Coffee break**
9:40		**Log 386. PROTON NUCLEAR MAGNETIC RESONANCE (H NMR) OF GLYCOLATE IN REAL WASTE.** White, T.L. (1, P); Fondeur, F.F. (1); Coleman, C.J. (1); DiPrete, D.P. (1); Looney, B.B. (1); (1) Savannah River National Laboratory. (P) Presenting Author.
10:00	5	**Log 426. EXTRACTIONS OF TH(IV) AND U(IV,VI) FROM NITRIC ACID SOLUTION USING ORGANOPHOSPHORUS REAGENT (HEH[EHP]).** Castillo, J.(1,P); Gelis, A.V.(1); (1) University of Nevada, Las Vegas. (P) Presenting Author.
10:20	6	**Log 359. COMPARISON OF METHODS FOR MONITORING RECOVERY RATES IN SR-SEPARATION.** Blenke, T.(1,P), Schäfer,T.(1), Steinhauser, G.(1). (1) Leibniz University Hannover, (P) Presenting Author.
10:40	7	**Log 314. OPTIMIZATION OF A SIMPLIFIED RADIOCHEMICAL METHOD BASED ON SR®-RESIN FOR MEASUREMENT OF ^{90}Sr IN NUCLEAR WASTE .** Baudat, E (1,P); Gautier,C(1); Bagán, H(2); Tarancón, A(2); Colin, C(1); Laporte, E(1); Fichet,P(3);(1) Université Paris-Saclay, CEA, Service d'Études Analytiques et de Réactivité des Surfaces, 91191, Gif-sur-Yvette, France,(2) Department of Chemical Engineering and Analytical Chemistry, University of Barcelona, Marti i Franqués, 1-11, ES-08028, Barcelona, Spain. (3)CEA, DES/DDSD/DFDE/SGOF, Building 611, 91191, Gif-sur-Yvette, France (P) Presenting Author.
11:30-1		**Lunch break followed by afternoon sessions**

Session I (continued)

1:00 (30 min)	9	**Log 517. EXTRACTION OF PM-147 FROM SRS NUCLEAR MATERIAL MANAGEMENT PROGRAM SOLUTIONS.** Fenker, K. M. (1,P); DiPrete, D. P.(1). (1) Savannah River National Laboratory. (P) Presenting Author.
1:30	10	**Log 534. MICROMOLAR LEVEL SENSING AND QUANTITATIVE RECOVERY OF LANTHANIDES FROM ALKALINE SOLUTIONS WITH SIMPLE O-SULFONAMIDOPHENOL DERIVATIVES.** Adedoyin, O.W.(1); Gonzalez, C.(1); Morozov, A.N.(1); Mebel, A.M.(1); Chakraborty, I.(1); Raptis, R.G.(1); Kavallieratos, K. (1,P) (1) Florida International University. (P) Presenting Author.
1:50	11	**Log 549. THERMODYNAMIC MODELING TO FACILITATE SAFE HANDLING OF CESIUM CHLORIDE SEALED SOURCES.** Weber, C.F. (1,P); Abrecht, D.G. (1). (1) Oak Ridge National Laboratory. (P) Presenting Author.
2:10	12	**Log 558. RADON-PROGENY BLIND TRACE ACTINIDE IN AIR ALPHA SPECTROSCOPY WITH TMFD SENSORS.** Hemesath, M. (1,2); Boyle, N. (1,3,P); Archambault, B. (1,4) Lorier, T. (5); DiPrete, D. (5); Taleyarkhan, R. P. (1). (1) Purdue University. (2) Niowave, Inc. at Lansing. (3) US Intelligence Comm. Post.Doc Fellow -ORISE. (4) Pacific Northwest National Laboratory. (5) Savannah River National Laboratory. (P) Presenting Author.
2:30	13	**Log 559. HYBRID MASS-ALPHA SPECTROMETRY -TRACE LEVEL UNDER 10 keV ACTINIDES IN FLUID IDENTIFICATION WITH TMFD SENSOR TECHNOLOGY.** Harabagiu, C. (1); Boyle, N. (1,2); Archambault, B. (1,3). DiPrete, D. (4); Taleyarkhan, R. P. (1). (1) Purdue University. (2) US Intelligence Comm. Post.Doc Fellow -ORISE. (3) Pacific Northwest National Laboratory. (4) Savannah River National Laboratory. (P) Presenting Author.
2:50	14	**Log 560. A COMPARISON OF DEHBA AND TBP AS EXTRACTING AGENTS FOR TETRA- AND HEXAVALENT ACTINIDES IN THE CHALMERS GOUPED ACTINIDE EXTRACTION PROCESS (CHALMEX).** Authen, T. L. (P, 1), Tekikachew, B. E. (1), Foreman, M. R. StJ. (1), Wilden, A. (2), Ekberg, C. (1). (1) Division of Nuclear Chemistry and Industrial Materials Recycling, Department of Chemistry and Chemical Engineering, Chalmers University of Technology, Kemivägen 4, 412 96 Gothenburg, Sweden; (2) Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung, Nukleare Entsorgung und Reaktorsicherheit (IEK-6), 52428 Jülich, Germany
3:30-5		**Poster Session**

SESSION J: APPLICATION OF NUCLEAR TECHNIQUES TO TREATY MONITORING AND NUCLEAR FORENSICS

ALL DAY WEDNESDAY IN BALLROOM A

ORGANIZED BY HARRY MILEY, PACIFIC NORTHWEST NATIONAL LABORATORY, USA; STEVE BIEGALSKI, GEORGIA TECH, USA; ADAM HUTTER, US CUSTOMS AND BORDER PATROL, USA; AND ANDERS RINGBOM, FOI, SWEDEN

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 467. RADIOXENON DETECTIONS DURING THE SPALAX-NG CTBTO QUALIFICATION.** Topin, S.(1, P); Achim, P.(1); Gross, P.(1); Generoso, S.(1); Douysset, G.(1); Delaune, O.(1);Philippe, T.(1); Ungar, K.(2); Bean, M.(2); Hoffman, I.(2). (1) CEA/DAM Ile de France (2) Health Canada. (P) Presenting Author.
8:40	2	**Log 482. SAUNA III OPERATION AND RADIOXENON BACKGROUND IN STOCKHOLM.** Aldener, M. (1,P); Fritioff, T.; Ringbom, A.; (1) Swedish Defence Research Agency (P) Presenting Author.
9:00	3	**Log 491. XENON INTERNATIONAL TESTING OPERATIONS.** James C. Hayes (1,P), Mark E. Panisko (1), Matthew W. Cooper (1), Warren W. Harper (1), Michael F. Mayer (1), Foxe, M.P (1).; James H. Ely (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
9:20	4	**Log 421. MACHINE LEARNING APPLICATIONS IN THE CHARACTERIZATION OF RADIOXENON SIGNATURES.** Hunter, C.J. (1,P); Powers-Luhn, J.R. (2); Hartig, K.C. (1). (1) The Unviersity of Florida. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
9:40		**Coffee break**
10:00	5	**Log 579. RADIOKRYPTON AND RADIOXENON DIFFUSION IN SILICATE AND SODIUM CHLORIDE MEDIA.** Lapka, J.L. (1,P), Haas, D.A. (1),Lowrey, J.D. (2) The Unviersity of Texas at Austin. (2) Pacific Northwest National Laboratory (2). (P) Presenting Author.
10:20	6	**Log 410. ENVIRONMENTAL OBSERVATION OF NONSTANDARD RADIOXENONS.** Mayer, M.F. (1,P); Cooper, M.W (1); Ely, J.H. (1); Eslinger, P.W. (1); Foxe, M.P. (1), Hayes, J.C. (1); McIntyre, J.I. (1); Bowyer, T.W.(1); Panisko, M.E. (1). (1) Pacific Northwest National Laboratory
10:40	7	**Log 464. IMPACT OF A SILICON BETA CELL ON RADIOXENON SOURCE IDENTIFICATION.** Michael Foxe (P), Michael Mayer, Johnathan Slack, Eric Becker, Alex Couture, Thomas Hallen, Mike Ripplinger, James Hayes
11:00	8	**Log 242. SOLAR PHOTOVOLTAIC DEVICES AND SOLAR FARM FOR POST-DETONATION MONITORING.** Kandlakunta, P.(1,P); Van Zile, M.(2); Panaccione, W.(1); Cao, L. R.(1,2). (1) Department of Mechanical and Aerospace Engineering, The Ohio State University. (2) Nuclear Reactor Laboratory, The Ohio State University. (P) Presenting Author.
11:20	9	**Log 504. NEW METHOD OF CALCULATING INTERFERENCE RATIOS AND INCLUDING METASTABLES IN RADIOXENON ANALYSIS** Brittany L. Abromeit (1), Foxe, MP (1,P), James H. Ely (1), Matthew W. Cooper (1), James C. Hayes (1), Daniel T. Keller (1), Michael F. Mayer (1), Johnathan L. Slack (1), Thomas J. Suckow (1), Ryan E. Wilson (1). (1) Pacific Northwest National Laboratory
11:40-1		**Lunch break followed by afternoon sessions**

Session J (continued)

1:00 (30 min)	10	**Log 330. PROJECTED NETWORK PERFORMANCE FOR NEXT GENERATION AEROSOL MONITORING SYSTEMS.** Miley, H.S.(1,P), Eslinger, P.W.(1), Schrom, B.T.(1). (1) Pacific Northwest National Labotoratory
1:30	11	**Log 263. APPLICATION OF ARTIFICIAL INTELLIGENCE METHODS TO MICROSCOPIC PARTICLE ANALYSIS.** Bickley, A.A. (1,P). (1) Air Force Institute of Technology. (P) Presenting Author.
1:50	12	**Log 264. Radiochemical Separations and Yield Measurements for Short-Lived Natural Thorium Fission Products.** Kuatbek, M. (1,P); Pierson B. D. (2); Lyons S. M. (2); Johnsen A. M. (1). (1) The Pennsylvania State University. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
2:10	13	**Log 403. IMPROVING THE DETECTION SENSITIVITY OF THE NEXT GENERATION OF RADIONUCLIDE AEROSOL SAMPLER/ANALYZER AIR SAMPLER.** Burnett, J. L. (1); Miley, H. S. (1); O'Mara, R.P. (1, P); Myers, A. W. (1); Sharma, M. (1). (1) Pacific Northwest National Laboratory
2:30	14	**Log 307. DIRECT SYNTHESIS METHODS FOR SURROGATE ENVIRONMENTAL SWIPE SAMPLES TO SUPPORT NUCLEAR SAFEGUARDS TREATY MONITORING ACTIVITIES.** Ashlee Swindle (1), Spencer M. Scott (1), Michael G. Bronikowski (1), Benjamin E. Naes (2), Travis J. Tenner (2), Kimberly N. Wurth (2), Katherine Koh (3), Riane E. Stene (3), Timothy R. Pope (3), Stephan Vogt (3), Christopher A. Barrett (3) , Matthew S. Wellons (1,P) (1) Savannah River National Laboratory, Aiken, SC. (2) Los Alamos National Laboratory, Los Alamos, NM. (3) Pacific Northwest National Laboratory, Richland, WA. (P) Presenting Author.
2:50	15	**Log 237. DISTRIBUTION OF TH-234 IN FRESHLY CAST URANIUM.** LaMont, S.P. (P); Boswell, M.; James, M.R.; Luitjohan, K.E.; Imhoff, S.D.; Kayzar-Boggs, T.M. Los Alamos National Laboratory
3:10	16	**Log 459. RAPID ASSESSMENT OF URANIUM ACTIVITY AND MASS FOR NUCLEAR FORENSICS.** Valdovinos, H.F.(1,P); Glennon, K.J.(1); Parsons-Davis, T.(1); Shusterman, J.A.(1); Gharibyan, N.(1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
3:30-5		**Poster Session**

SESSION K: ADVANCES IN ACTINIDE ANALYTICAL AND RADIONUCLEAR CHEMISTRY

WEDNESDAY MORNING BALLROOM B

ORGANIZED BY LAV TANDON, LOS ALAMOS, NATIONAL LABORATORY, USA; PHILIP. KAYE, AWE, UK, MATHEW HIGGINSO, AWE,UK; AND P. THOMPSON, AWE, UK.

TIME	order	Presentation Title and Speaker
8:00	1	**Log 205. ELECTROCHEMICAL INVESTIGATION OF HIGHER OXIDATION STATES OF ACTINIDES.** Dr. Artem V. Gelis, Nicholas H. Cicchetti (P)
8:20	2	**Log 217. DEVELOPMENTS IN ACTINIDE ANALYTICAL CHEMISTRY APPROACHES AT AWE.** Higginson, M (1, P); Dawkins, B (1); Kaye, P (1); Taylor, F (1); Shaw, T (1); Dunn, S (1); Ingman, L (1); Cross, S (1) and Taylor, T (1). (1) AWE, AWE Aldermaston, RG7 4PR, UK
8:40	3	**Log 324. IDENTIFYING TRACER - ANALYTE DISEQUILIBRIUM IN PLUTONIUM BIOASSAY SAMPLES, AND A METHOD TO PROPERLY ESTABLISH EQUILIBRIUM.** Harris, M.N. (1P); Hudston, L.A. (1); Zazueta, J.A.(1); Zuniga, M.M. (1); Lopez, D.M. (1); Eaton, S.J. (1); Debacker, K.B. (1); Inglis, J.D. (1); Lamont, S.P. (1); Steiner R.E. (1). (1) Los Alamos National Laboratory.
9:00	4	**Log 203. IDENTIFICATION OF URANIUM HEXAVALENT COMPOUNDS USING X-RAY PHOTOELECTRON SPECTROSCOPY.** Stuart A. Dunn1 (P), P. Roussel1, C. Poile1, C.Puxley, M. Higginson1, P. Kaye1, T. Shaw1, M. Gilbert1,John F. Watts 2. 1 AWE, Aldermaston, Reading RG7 4PR, UK. 2 Department of Mechanical Engineering Sciences, University of Surrey, Guildford, Surrey GU2 7XH, UK
9:20	5	**Log 317. RADIOACTIVE ASBESTOS - A CHALLENGING MATERIAL FOR RADIOANALYTICAL INVESTIGATION.** Köhler, F. (1); Heule, M. (1); Jäggi, M. (1). (1) Paul Scherrer Institute (PSI)
9:40		**Coffee break**
10:00	6	**Log 388. FORMATION OF CERIUM OXIDES THROUGH BENCHTOP LASER EXPERIMENTS IN CONTROLLED OXYGEN ATMOSPHERES.** Auner, A.W.(1,P); Burton, M.A.(1); Weisz, D.G.(1); Crowhurst, J.C.(1); Knight, K.B.(1). (1) Lawrence Livermore National Laboratory (P) Presenting Author.
10:20	7	**Log 436. COMPARISON OF MIXED-MODAL RESIN TO SOLVENT EXTRACTION FOR USE IN NUCLEAR FORENSICS.** Matthew Risenhuber, Staci Herman, Evan Warzecha, Hilary Emerson, Chelsie Beck, Brienne Seiner.
10:40	8	**Log 442. IN-LINE NON DESTRUCTIVE ISOTOPICS MEASUREMENT FOR PLUTONIUM SAMPLES.** Rim, J.H.(1,P); Tandon, L.(1); Winkler, R.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
11:00	9	**Log 507. DISSOLUTION OF URANIUM HEXAFLUORIDE AND PRECIPITATION OF URANIUM FROM 1-METHYL-1-PROPYLPIPERIDINIUM BIS(TRIFLUOROMETHYLSULFONYL)IMIDE.** Higgins, C.J.(1,P); Lubke, K.I.(1); Poineau, F.(1); Czerwinski, K.R.(1); Hatchett, D.W.(1); (1) University of Nevada, Las Vegas. (P) Presenting Author.
11:30-1		**Lunch break followed by afternoon sessions**

SESSION N: ENVIRONMENTAL RADIOACTIVITY

WEDNESDAY AFTERNOON BALLROOM B

ORGANIZED BY HENRIETTA DULAI, UNIVERSITY OF HAWAI'I AT MĀNOA, USA; TERRY HAMILTON, LAWRENCE LIVERMORE NATIONAL LABORATORY, USA; AND HENRY SPITZ, UNIVERSITY OF CINCINNATI, USA

1:00 (30 min)	1	**Log 316. ANALYSIS OF TURTLE AND TORTOISE SCUTES CAN PROVIDE A TIME-CONSTRAINED RECORD OF RADIONUCLIDE RELEASES INTO THE ENVIRONMENT.** Inglis, J.D. (1,P); Conrad, C.N. (2); Mukundan, N. (1); Sanborn, M.E. (1); Wende, A.M. (1); Tenner, T.J. (1); Wurth, K.N. (1); Naes, B.E. (1); Fair, J.M. (3); Middlebrook, E.A. (3); Gaukler, S.M. (2); Whicker, J.J. (2); Tapia Aguilera, W. (4); Gibbs, J.P. (5); Wolf, B.O. (6). (1) Chemistry Division, Nuclear and Radiochemistry Group, Los Alamos National Laboratory, Los Alamos National Laboratory; (2) Environmental Protection and Compliance Division, Environmental Stewardship Group, Los Alamos National Laboratory; (3) Bioscience Division, Biosecurity and Public Health Group, Los Alamos National Laboratory; (4) Giant Tortoise Restoration Initiative, Galapagos Conservancy; (5) State University of New York College of Environmental Science; (6) Department of Biology, University of New Mexico.
1:30	2	**Log 284. SEQUENTIAL LEACHING OF SINGLE "HOT" PARTICLES FROM THE CHERNOBYL EXCLUSION ZONE.** Leifermann, L. (1)(P); Weiß, M. (1); Weissenborn, T. (1); Hanemann, P. (1); Raiwa, M. (1); Fraatz, P. (1); Schulz, W. (1); Reinhard, S. (1); Walther, C. (1). (1) University of Hannover. (P) Presenting Author.
1:50	3	**Log 277. IN VITRO LUNG DISSOLUTION RATE AND PARTICLE SIZE DETERMINATION FOR PLUTONIUM-238 OXIDE INVOLVED IN AN INCIDENT AT THE LOS ALAMOS NATIONAL LABORATORY.** Macsik, Z.(1,P); LaMont, S.P.(1); Hudston, L.A.(1); Harris, M.N.(1); Tenner, T.J.(1); Naes, B.E. (1); Wurth, K.N.(1); Steiner, R.E.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
2:10	4	**Log 376. OVERVIEW OF THE CONSEQUENCE MANAGEMENT LABORATORY ANALYSIS PROGRAM.** Fournier, S. (1,P); Shanks, S. (1); Allen, M. (1); Chapman, J. (2). (1) Sandia National Laboratories. (2) NNSA NA-84 Office of Nuclear Incident Response Nuclear Emergency Support Team.
2:30	5	**Log 208. WHAT EVER HAPPENED TO FOOD IRRADIATION: STILL AN ALTERNATIVE?** Butterweck, J. Aerospace and Environmental Medicine Group, Ltd.
2:50	6	**Log 483. ORIGIN OF RADIOCESIUM IN WILD BOARS FROM BAVARIA.** Stäger, F.(1,P); Zok, D.(1); Schiller, A.K.(1); Steinhauser, G.(1). (1) Leibniz Universität Hannover. (P) Presenting Author.
3:10	7	**Log 508. TRANSFER PARAMETERS OF RADIONUCLIDE INTO FARM ANIMAL PRODUCTS IN SEMIPALATINSK TEST SITE CONDITION (MAIN RESULTS AND PROSPECTS).** Baigazinov, Zh.A. (1,2), Lukashenko, S.N.(3), Kovacs T. (2,P) (1) Institute of radiation safety and ecology, National Nuclear Center of Republic of Kazakhstan, Kurchatov, Kazakhstan (2) Institute of Radiochemistry and Radioecology, University of Pannonia, Veszprem, Hungary. (3) Russian Institute of Radiology and Agroecology, Obninsk, Russia
3:30-5		**Poster Session**

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

WEDNESDAY MORNING IN BALLROOM C

ORGANIZED BY KENAN UNLU, PENNSYLVANIA STATE UNIVERSITY, USA; LEI CAO, OHIO STATE UNIVERSITY, USA; AND R. GREGORY DOWNING, AWAREABILITY TECHNOLGIES, USA.

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 258. CHARACTERIZATION OF NEUTRON IMAGING FACILITY AT PENN STATE BREAZEALE NUCLEAR REACTOR.** Kenges, A. (P); Unlu, K.; Beck, D.B.; Pennsylvania State University, The Radiation Science and Engineering Center
8:40	2	**Log 308. UO2 AS A POINT LIGHT DETECTION DEVICE.** Karl Rickert (1); Timothy A. Prusnick(1); Matthew A. Streby(1); David B. Turner(2,P); Charles J. Reyner(3); J. Matthew Mann(3). (1) KBR, Dayton, OH, 45431. (2) Azimuth Corporation, Beavercreek, OH, 45431. (3) Air Force Research Laboratory, Sensors Directorate, Wright Patterson AFB, OH 45433, USA. (P) David B. Turner.
9:00	3	**Log 427. IN-SITU POSITRON ANNIHILATION SPECTROSCOPY OF IRRADIATION INDUCED DEFECTS.** Chuting Tan (1,P), Paul J. Stonaha (2), Jagoda M. Urban-Klaehn (1), Andrew T. Smolinski (1), Kyrone D. Riley (1), Kyle Francis (3), Connor J. Harper (4), Tony Forest (4), Chase N. Taylor (1). (1) Idaho National Laboratory. (2) Physics Education and Consulting, LLC. (3) Walsh Engineering Services. (4) Idaho State University
9:20	4	**Log 472. AN IN-POOL MOLTEN SALT TESTING FACILITY AT THE PULSTAR REACTOR.** Hawari, A.I.(1,P); Liu, M.(1); Lassell, S.A.(1). (1) North Carolina State University.
9:40		**Coffee break**
10:00	5	**Log 543. MULTI-DETECTOR NEUTRON DEPTH PROFILING FOR PROBING LI DISTRIBUTION IN LI-ION BATTERIES.** Safranek, A.W. (1); Wood D. (2); Co A. (2); Kauffman A. (3); Cao L.R. (1)(3); Downing, G. (4)(P); (1) Department of Nuclear Engineering, The Ohio State University. (2) Department of Chemistry, The Ohio State University. (3) Nuclear Reactor Laboratory, The Ohio State University. (4) AwareAbility Technologies, LLC. (P) Presenting Author.
10:30	6	**Log 556. ADDING CAPPING LAYERS TO NDP SAMPLES BROADENS AND ATTENUATES SPECTRA.** Weaver, J.L. (1); Downing, R.G. (1). (1) Material Measurement Laboratory, National Institute of Standards and Technology
10:50	7	**Log 581. CHARACTERIZATION OF THE NEUTRON PULSE TIME PROFILE FROM A DEUTERIUM-TRITIUM NEUTRON GENERATOR.** Searfus, O.(1,P); Graham, C. (1); Jinia, A (1); Clarke, S. (1); Pozzi, S (1); Jovanovic, I. (1). (1) The University of Michigan Department of Nuclear Engineering and Radiological Sciences. (P) Presenting Author.
11:30-1		**Lunch break followed by afternoon sessions**

SESSION O: INTERNATIONAL STATUS AND CHALLENGES OF RADIOCHEMISTRY EDUCATION AND TRAINING

WEDNESDAY AFTERNOON IN BALLROOM C

ORGANIZED BY CLEMENS WALTHER, UNIVERSITY OF HANNOVER, GERMANY.

1:00 (30 min)	1	**Log 290. TEACHING RADIOCHEMISTRY SIMULTANEOUSLY TO NUCLEAR ENGINEERS AND CHEMISTS.** Nathalie A. Wall, Donald E. Wall. University of Florida
1:30	2	**Log 340. BETWEEN INTERACTIVE SCREEN EXPERIMENTS AND FLIPPED CLASSROOM: IMPROVING THE TEACHING AND LEARNING OF RADIOCHEMISTRY AND RADIOPHYSICS THROUGH COOPERATIVE PROJECTS.** Dirk Brockmann-Behnsen, Lars Weiß, Jan Vahlbruch, Clemens Walther, Gunnar Friege
1:50	3	**Log 392. LESSONS LEARNED FROM THE ADAPTATION OF THE NUCLEAR AND RADIOCHEMISTRY SUMMER SCHOOL TO A VIRTUAL FORMAT.** Baisden, T.(1); Bechtel, H.(2); Bryan, J.(3); Cutler, C.S.(4); Deri, M.A.(5,6,P); Esfandiari, M.(7); Esker, N.E(7); Francesconi, L.C.(6,8); Maraschin, V.(7); Sanders, V.A(4); Van Wyngarden, A.(7). (1) National Ignition Facility and Photon Sciences, Lawrence Livermore National Laboratory, Retired. (2) Regional Network Consulting Director, IBM Global Technology Services, retired. (3) Department of Chemistry and Biochemistry, University of Wisconsin-La Crosse. (4) Collider Accelerator Department, Brookhaven National Laboratory. (5) Department of Chemistry, Lehman College of the City University of New York. (6) The Graduate Center of the City University of New York. (7) Department of Chemistry, San José State University. (8) Department of Chemistry, Hunter College of the City University of New York. (P) Presenting Author.
2:10	4	**Log 531. AUGMENTED COOPERATION IN EDUCATION AND TRAINING IN NUCLEAR AND RADIOCHEMISTRY.** Walther, C. (1,P). (1) Leibniz University Hannover /Institute of Radioecology and Radiation Protection, 30419 Hannover, Germany (P) Presenting Author.
2:30	5	**Log 334. THE VLADIS INITITIVE: INCLUSIVE VIRTUAL ENGAGEMENTS IN RADIOCHRONOMETRY.** Brennecka G.A. (1, P), Treinen K. (1), Adena K. (2), Kayzar-Boggs T. (3), Bavio M. (4), Keegan E. (2), Kips R. (1), Davydov J. (3), Denton J. (3), Eppich G. (1), Inglis J. (3), M. Samperton K. (5) - (1) Lawrence Livermore National Laboratory (2) ANSTO, Australia (3) Los Alamos National Laboratory (4) International Atomic Energy Agency (5) Savannah River National Laboratory (P) Presenting Author.
2:50	6	**Log 440. UNIVERSITY OF NEVADA, LAS VEGAS: EDUCATIONAL OPPORTUNITIES FOR WOMEN IN NUCLEAR SCIENCE.** JOHNS, W. (P)
3:10	7	**Log 477. PARTICLE THERAPY INTERNATIONAL MASTERCLASS: THE FIRST ITALIAN EXPERIENCE.** Groppi, F. (1,2,P); Capua M. (3,4); Manenti, S. (1,2); Tucci, R. (4,5); Cagnetta, MF (2,6); Colucci, M. (1,2); (1) LASA Lab., Physics Dept. of Milano University. (2) INFN-MI, Italy. (3) Physics Dept. of Calabria University, Italy. (4) INFN-CS, Italy. (5) Liceo Scientifico E. Fermi, Cosenza, Italy. (6) Liceo Scientifico Donatelli-Pascal, Milano , Italy. (P) Presenting Author.
3:30-5		**Poster Session**

SESSION M: SALT CHEMISTRY AND RADIOCHEMISTRY IN SUPPORT OF MOLTEN SALT REACTORS

ALL DAY WEDNESDAY IN BALLROOM D

ORGANIZED BY DAVID HOLCOMB, OAK RIDGE NATIONAL LABORATORIES, USA; DEREK HAAS, UNIVERSITY OF TEXAS, USA; SHAYAN SHAHBAZI, ARGONNE NATIONAL LABORATORY, USA.

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 222. TWO CHLORINATION METHODS FOR CONVERTING UO2 INTO UCl_3 USING $ZrCl_4$.** Chamberlain, J.L. (1,P); Simpson, M. F. (1). (1) The University of Utah. (P) Presenting Author.
8:40	2	**Log 233. Boron-doped diamond resilience in chloride and fluoride molten salt fuel systems.** Patenaude, H.K.(1,P); Rakos, R.(1); Olney, R.(1); Damjanovic, N.(1); Branch, S.D.(2); Rusinek, C.A.(1). (1) The University of Nevada, Las Vegas. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
9:00	3	**Log 254. Long Term Stability of Ag/AgCl Reference Electrode in Molten Chloride Salt.** Suhee Choi (1,P); Jim Steppan (2); Michael F. Simpson (1). (1) Unviersity of Utah. (2) HiFund, LLC. (P) Presenting Author.
9:20	4	**Log 300. REAL-TIME IN SITU MONITORING OF COMPONENTS IN A FLOWING MOLTEN SALT LOOP WITH INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY.** Pamplin, K.L.(1,P); Babb, E.M.(1); Berry, A.M.(1); Bonamie, E.J.(1); for the NEXT Lab Collaboration. (1) Abilene Christian University (P) Presenting Author.
9:40		**Coffee break**
10:00	5	**Log 347. MEASUREMENT OF CORROSION PRODUCT FILTRATION IN A FLUORIDE MOLTEN SALT SYSTEM USING INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY.** Head, T.L. (1,P); Babb, E.M. (1); Berry, A.M. (1); Bonamie, E.J. (1); Howe, R. (1); Kennedy, T. (1); Pamplin, K.L. (1); Sanchez, B. (1); Watson, T.S. (1); for the NEXT Collaboration (1); Robb, K.R. (2); (1) Abilene Christian University, (2) Oak Ridge National Laboratory, (P) Presenting Author.
10:20	6	**Log 395. ELECTROCHEMICAL ASSAYS OF URANIUM METAL IN MOLTEN FLINAK FUEL SALTS.** Newton, M.L. (1,P); Simpson, M.F. (1). (1) The University of Utah.
10:40	7	**Log 399. PRELIMINARY RADIOCHEMICAL TRANSPORT MODEL OF THE MOLTEN SALT REACTOR EXPERIMENT.** Shahbazi, S.(1,P); Fei, T.(1). (1) Argonne National Laboratory. (P) Presenting Author.
11:00		
11:30-1		**Lunch break followed by afternoon sessions**

Session M (continued)

1:00 (30 min)	8	**Log 470. THERMOPHYSICAL PROPERTIES OF BINARY CL COMPOSITIONS FOR NEXT GENERATION MOLTEN SALT REACTORS.** Lonergan, J.(1,P);Swinhart, M.(3);Sudowe, R.(3); Guo, X.(2); Clark, R.(1);McNamara, B.(1); Paviet, P.(1); (1)Pacific Northwest National Laboratory. (2) Washington State University. (3) Colorado State University. (P) Presenting Author.
1:30	9	**Log 502. EXAMINATION OF USING BORON-DOPED DIAMOND FOR SPECTROELECTROCHEMICAL ANALYSIS IN HARSH ENVIRONMENTS.** Rakos, Jason (1,P); Patenaude, Hannah K. (1); Olney, Renee (1); Damjanovic, Nastasija (1); Rusinek, Cory A. (1). (1) University of Nevada, Las Vegas.
1:50	10	**Log 518. ASSESSMENT OF A CORROSION RESISTANT AMORPHOUS ALLOY COATING ON SS 316 EXPOSED TO MOLTEN LiCI-KCI EUTECTIC.** Killinger, D. (1, P), Phongikaroon, S. (1) Virginia Commonwealth University. (P) Presenting Author.
2:10	11	**Log 519. EFFECT OF MOLTEN SALT COMPOSITION ON THE MORPHOLOGY OF ELECTRODEPOSITED URANIUM CRYSTALS.** Killinger, D. (1, P), Phongikaroon, S. (1) Virginia Commonwealth University. (P) Presenting Author.
2:30	12	**Log 550. THERMOPHYSICAL PROPERTIES OF LIQUID CHLORIDES FROM 600 – 1600 K.** Stephen Scott Parker (1,P), A. Long (1), C. Lhermitte (2), S. Vogel (1), M. Monreal (2), J.M. Jackson (1) (1) Los Alamos National Laboratory: Materials Science and Technology Division (2) Los Alamos National Laboratory: Chemistry Division
3:30-5		**Poster Session**

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

ALL DAY THURSDAY IN BALLROOM A

ORGANIZED BY GEORGE LASCHE, SNAKEDANCE SCIENTIFIC, USA; CRAIG AALSETH, PACIFIC NORTHWEST NATIONAL LABORATORY, USA; JONATHAN BURNETT; PACIFIC NORTHWEST NATIONAL LABORATORY, USA

TIME	order	Presentation Title and Speaker
8:00	1	**Log 213. A METHOD FOR FISSION PRODUCT YIELD DETERMINATION USING GAMMA-GAMMA COINCDIENCE.** De Luna, B.A.(1,2,P); Haas, D.A.(1). (1) The UnIversity of Texas at Austin. (2) Sandia National Laboratories. (P) Presenting Author.
8:20	2	**Log 240. AUTOMATED RAPID ANALYSIS AND REPORTING OF LARGE NUMBERS OF COMPLEX GAMMA SPECTRA FOR EMERGENCY MANAGEMENT WITH VRF.** Metzger, R.L. (1,P); Lasche, G.P. (2). (1) Radiation Safety Engineering, Inc. (2) Snakedance Scientific. LLC.
8:40	3	**Log 239. EXPERIMENTAL VERIFICATION OF THEORETICAL STATISTICAL UNCERTAINTIES WITH VRF HOLISTIC NON-LINEAR LEAST-SQUARES ANALYSIS OF GAMMA SPECTRA.** Lasche, G.P. (1,P); Metzger, R.L. (2). (1) Snakedance Scientific, LLC. (2) Radiation Safety Engineering, Inc.
9:00	4	**Log 401. ULTRA-SENSITIVE GAMMA SPECTROMETRY MEASUREMENTS USING THE ADVANCED RADIONUCLIDE GAMMA SPECTROMETER (ARGO) SYSTEMS.** Burnett, J. L. (1); Myers, A. W. (1); O'Mara, R. P. (1, P) Sharma, M. (1). (1) Pacific Northwest National Laboratory
9:20	5	**Log 441. PLUTONIUM ISOTOPIC MEASUREMENTS USING A SEGMENTED HIGH-PURITY GERMANIUM DETECTOR.** Rim, J.H.(1,P); Porterfield, D.R.(1); Smith, M.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
9:40		**Coffee break**
10:00	6	**Log 501. A CONCEPTUAL MOLTEN SALT MASS MEASUREMENT TECHNIQUE BASED ON RADIOACTIVE TRACER DILUTION AND GAMMA SPECTROSCOPY.** Cao, G. (1, P); Li, S. (1); Cao, R. (2); Kandlakunta, P. (2). (1) Idaho National Laboratory. (2) Ohio State University.
10:20	7	**Log 505. GAMMA-RAY SPECTROMETRY ANALYSIS METHODS FOR RADIOISOTOPE DISSOLUTION AND MIXING FOR NUCLEAR FORENSICS APPLICATIONS.** Holschuh, T.V. (1,P); Ocampo Giraldo, L.A. (1); Snow, M.S. (1); Chichester, D.L. (1). (1) Idaho National Laboratory. (P) Presenting Author.
10:40	8	**Log 510. A QUANTITATIVE COMPARISON OF MICROCALORIMETERS AND HIGH-PURITY GERMANIUM DETECTORS FOR NON-DESTRUCTIVE PLUTONIUM ISOTOPIC ANALYSIS.** D.T. Becker(1, P), D.A. Bennett(2), M. H. Carpenter(3), M. Croce(3), J.W. Fowler(1,2), J. D. Gard(1), G.C. Hilton(2), A.S. Hoover(3), J. Imrek(1), K.E. Koehler(3), J.A.B. Mates(2), D.J. Mercer(3), G.C. O'Neil(2), N.J. Ortiz(2), C.D. Reintsema(2), D.R. Schmidt(2), K.A. Schreiber(3), D.S. Swetz(2), J.N. Ullom(1,2), L.R. Vale(2), D.T. Vo(3), S.L. Weidenbenner(3), A. Wessels(1). (1) University of Colorado, Boulder, Colorado, USA, (2) National Institute of Standards and Technology, Boulder, Colorado, USA, (3) Los Alamos National Laboratory, Los Alamos, New Mexico, USA, (P) Presenting Author

(continued next page)

11:00	9	**Log 520. A COMPARISON OF ALTERNATIVE ISO-11929 COMPLIANT DETECTION LIMIT CALCULATIONS FOR THE CASE OF LARGE SYSTEMATIC UNCERTAINTIES.** Kirkpatrick, J.M. (1, P). (1) Mirion Technologies (Canberra), Inc. (P) Presenter
11:30-1		**Lunch break followed by afternoon sessions**
		Session P (continued)
1:00	10	**Log 526. UNCERTAINTY PROPAGATION USING CORRELATIONS IN GAMMA SPECTROMETRY AND THE EFFECT ON EFFICIENCY CALIBRATION AND ACTIVITY DETERMINATION.** Persson, H. (1, P), Anderson, T. (1), Kirkpatrick J.M. (1), Phillips, K. (1) Mirion Technologies (P) Presenting Author.
1:20	11	**Log 527. AN AUTOMATED METHOD FOR RESOLVING UNIDENTIFIED PEAKS IN GAMMA SPECTROMETRY.** Persson, H. (1, P), Phillips, K. (1), Tischenbach, E (1) Mirion Technologies (P) Presenting Author.
1:40	12	**Log 547. EVALUATION OF A DEPLOYABLE HPGE DETECTION SYSTEM FOR USE IN HIGH ACTIVITY URANIUM OR PLUTONIUM PROCESS APPLICATIONS.** Sullivan, D. F. (1,P); Ilie, G. (1); Ralet, D. (2); (1) Mirion Technologies Meriden. (2) Mirion Technologies Lingolsheim
2:00	13	**Log 564. ALPHA/BETA GATED GAMMA-GAMMA SPECTROSCOPY OF MIXED FISSION PRODUCTS FOR TRACE ANALYSIS.** B. Pierson (1), B. Archambault (1,P), A. Hagen (1), L. Greenwood (1), M. Cantaloub (1), S. Herman (1), M. Haney (1), J. Estrada (1), J. Bowen (1), N. Uhnak (1) (1) Pacific Northwest National Laboratory
2:20	14	**Log 583. THE LOS ALAMOS LOW ACTIVITY INVESTIGATION ROOM (LAIR) AT THE EVENT VERIFICATION and IDENTIFICATION LABORATORY (EVIL) .** M. Boswell(1), D. Cox(1), D. Dry (1), S.R. Elliott(1), S. Lamont (1), R. Massarczyk(1), S. Meijer (1), W. Meijer (1). (1) Los Alamos NationalLaboratories.
2:40	15	**Log 597. DECAY ENERGY SPECTROSCOPY FOR SAMARIUM CHRONOMETRY AND NUCLEAR MATERIAL ANALYSIS.** Kim, G.B. (1, P); Borg, L.E. (1); Boyd, S.T.P. (2); Cantor, R.H. (3); Despotopulos, J.D. (1); Drury, O.B. (1); Friedrich, S. (1); Gallant, A. (1); Hines, N.R. (1); Jacobs, A. (4); Jovanovic, I. (5); Kmak, K.N. (1); Kavner, A.R.L. (1,5); Kim, Y.H. (6); Kunz, P. (4); Kwiatkowski, A. (4); Kwon, D.H. (6); Lee, D. (1); Murb¨ock, T. (4); Scielzo, N.D. (1); Shollenberger, Q.R. (1); Sio, C.K.I. (1); Thomas, K.J. (1); Wooddy, T. (1); Walls, C. (4); Amelin, Y. (7); Parsons-Davis, T. (1); Brennecka, G.A. (1). (1) Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (2) University of New Mexico, Albuquerque, NM 87131, USA. (3) Star Cryoelectronics, Santa Fe, NM 87508,USA. (4) TRIUMF Laboratory, Vancouver, BC V6T 2A3, Canada. (5) University of Michigan, Ann Arbor, MI 48109, USA. (6) Center for Underground Physics, Institute for Basic Science, Daejeon 34047, Republic of Korea. (7) The Australian National University, Canberra, ACT 2601, Australia.
3:00		
3:30-5		**Poster Session**

SESSION Q: FORENSIC METHODS, ANALYSIS AND APPLICATIONS OF WIDE AREA MONITORING FOR ENVIRONMENTAL RELEASES

ALL DAY THURSDAY IN BALLROOM B

ORGANIZED BY GEORGE STEINHAUSER, UNIVERSITY OF HANNOVER, GERMANY; ELISE CONTE, PACIFIC NORTHWEST NATIONAL LABORATORY, USA; KELLY MCHUGH, PACIFIC NORTHWEST NATIONAL LABORATORY, USA; AND ELIZABETH WIDOM, MIAMI UNIVERSITY, USA

TIME	order	Presentation Title and Speaker
8:00		**Welcome and Introduction**
8:10 (30 min)	1	**Log 391. INVESTIGATION OF A FORMER LOS ALAMOS NUCLEAR REACTOR SITE VIA HYPERSPECTRAL X-RAY IMAGING OF PARTICULATE SAMPLES.** Croce, M.P (1,P); Carpenter, M.H. (1); Stein, B. (1); Schreiber, K.A. (1); McNeel, D.G. (1); Morgan, K.M. (3); Wessels A.L. (3); Becker, D.T (3); Imrek, J. (2); Gard, J.D. (3); Mates, J.A.B. (2); Bennett, D.A. (2); Swetz, D.S. (2); Ullom, J. (2). (1) Los Alamos National Laboratory, (2) National Institute of Standards and Technology, (3) University of Colorado.
8:40	2	**Log 226. THE FISSION FINGERPRINT OF RUTHENIUM ISOTOPES: A FORENSIC TOOL OF SAMPLE PROVENANCE AND AGE DETERMINATION.** Sanborn, M.E.(1,P); Hanson, S.K.(1); Trellue, H.R.(1); Kinman, W.S.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
9:00	3	**Log 227. THE FISSION FINGERPRINT OF RUTHENIUM ISOTOPES: MEASUREMENTS OF NUCLEAR DEBRIS SAMPLES.** Hanson, S. K. (P), Sanborn, M., Meininger, D., Miller, J. L., Inglis, J., Kinman, W.
9:20	4	**Log 345. ULTRASHORT-PULSED LASER FILAMENT EXCITATION OF CHLOROPHYLL FLUORESCENCE IN ALGAE AS A BIOSENSOR FOR NUCLEAR ACTIVITY.** Finney, L.A.(1,2,P), Peskosky, N.(1,2), Skrodzki, P. J.(1,2), Burger, M.(1,2), Nees, J.(2), Krushelnick, K.(1,2), Jovanovic, I.(1,2). (1) Nuclear Engineering and Radiological Sciences University of Michigan Ann Arbor. (2) Gérard Mourou Center for Ultrafast Optical Sciences University of Michigan Ann Arbor. (P) Presenting Author
9:40		**Coffee break**
10:00	5	**Log 349. SPATIAL AND TEMPORAL DISTRIBUTION OF ATMOSPHERIC TRITIATED WATER VAPOR IN MAINLAND CHINA.** Feng, B. (1, P); Steinhauser, G. (1); Zhuo W.H. (2); Chen, B.(2) (1) Institute of Radioecology and Radiation Protection, Leibniz University Hannover; (2) Institute of Radiation Medicine, Fudan University; (P) Presenting Author.
10:20	6	**Log 350. REMOTE DETECTION OF ALPHA-EMITTING RADIONUCLIDES IN THE ENVIRONMENT.** Klose, A. (1,P); Walther, C. (1); Krasniqi, F.S. (2); Luchkov, M. (2); Dangendorf, V. (2). (1) Leibniz University of Hannover (2) PTB Braunschweig (P) Presenting author
10:40	7	**Log 384. EVALUATING HYDROLOGIC PROCESSES IN THE EASTERN SNAKE RIVER PLAIN AQUIFER WITH URANIUM AND STRONTIUM ISOTOPES.** Rattray, G.W. (1); Treinen, K.C. (1,P); Paces, J.B.(2). (1) U.S. Geological Survey, Idaho National Laboratory Project Office; (2) U.S. Geological Survey, Geosciences and Environmental Change Science Center
11:00	8	**Log 393. BACKGROUND MEASUREMENTS OF Ar-37 SAMPLES USING THE ARGON-37 FIELD SYSTEM.** James C. Hayes (1,P), Bradley G. Fritz (1), Lance S. Lidey (1), Chrinstine M. Johnson (1); Thomas R. Alexander (1), Emily K. Mace (1), Vincent T. Woods (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
11:30-1		**Lunch break followed by afternoon sessions**

Session Q (continued)

1:00 (30 min)	9	**Log 404. DEVELOPMENT OF A TECHNICAL DATA CENTER FOR THE PROCESSING AND ANALYSIS OF ENVIRONMENTAL RADIOACTIVITY MEASUREMENTS.** O'Mara, R.P. (1, P); Burnett, J. L. (1) Pacific Northwest National Laboratory
1:30	10	**Log 415. FRACTIONATION OF NUCLEAR DEBRIS Cs-137 AND Sr-90 IN FAYETTEVILLE, AK RAIN 1973-1976.** Inn, K.G.W.(1,2,3,P); Kuroda, P.K.(3); Raines, W.(3); Flanders, M.(3); Carl Harris, C.(3). (1) K&E Inn Ovations, Inc. (2) National Institute of Standards and Technology, Retired. (3) University of Arkansas. (P) Presenting Author.
1:50	11	**Log 439. STIR BAR SORPTIVE EXTRACTION AND COMPREHENSIVE GCXGC HIGH-RESOLUTION MASS SPECTROMETRY FOR THE ANALYSIS OF ORGANO-IODIDES IN SURFACE AND GROUND WATERS.** Mannion, J.M.(1,P); Brant, H.(1); Gamble, S.(1); Labone, E.(1); Mannion, D.R.(1); Samperton, K.(1). (1) Savannah River National Laboratory
2:10	12	**Log 595. TRACING SOURCES AND DISPERSAL OF ACTINIDES IN THE ENVIRONMENT USING BIOMONITORS.** Widom, E.(1,P); Kuentz, D.C.(1). (1) Miami University. (P) Presenting Author.
2:30	13	**Log 539. CHEMICAL AND STRUCTURAL CHARACTERIZATION OF PARTICULATE FALLOUT ISOLATED FROM AIR FILTERS.** Balboni, E., Dai Z., Matzel J., Kerlin M., Knight, K.
3:00	14	**Log 544. USING LASER ABLATION TO INFORM NUCLEAR FIREBALL CHEMISTRY: HOW OXYGEN AVAILABILITY AFFECTS URANIUM SPECIATION.** Burton, M.A.(1,P); Auner, A.W.(1); Crowhurst, J.C.(1); Boone, P.S.(1); Finney, L.A.(2); Weisz, D.G.(1); Koroglu, B.(1); Jovanovic, I.(2); Radousky, H.B.(1); Knight, K.B.(1). (1) Lawrence Livermore National Lab (2) University of Michigan. (P) Presenting Author.
3:30-5		**Poster Session**

SESSION R: EMERGING TECHNOLOGIES IN NUCLEAR NONPROLIFERATION

ALL DAY THURSDAY IN BALLROOM C

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

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 348. FORENSIC SIGNATURES FROM LASER ISOTOPE SEPARATION.** Burns, H.S.(1,P); Biegalski, S.R.(1). (1) Georgia Institute of Technology. (P) Presenting Author.
8:40	2	**Log 311. SPATIAL VARIATION OF FISSION NOBLE GAS RATIOS IN SPENT NUCLEAR FUEL.** Willett, C.D. (1,P); Cassata, W.S. (1); Isselhardt, B.H. (1); Matzel, J.E. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
9:00	3	**Log 447. A TABLETOP X-RAY TOMOGRAPHY INSTRUMENT FOR SPECTRAL IMAGING UTILIZING A TRANSITION EDGE SENSOR SPECTROMETER.** Nathan Nakamura (1,P), Bradley K. Alpert (1), Dan Becker (1), Douglas A. Bennett (1), Amber L. Dagel (2), Gabriella Dalton (2), W. Bertrand Doriese (1), Malcom Durkin (1,3), Joseph W. Fowler (1,3), Edward J. Garboczi (1), Johnathon D. Gard (1,3), James Zachariah Harris (2), Jozsef Imrek (1), Edward S. Jimenez (2), Kurt Larson (2), Zachary H. Levine (1), John A. B. Mates (1), Daniel McArthur (2), Kelsey M. Morgan (1,3), Galen C. O'Neil (1), Nathan J. Ortiz (1,3), Christine G. Pappas (1,3), Daniel R. Schmidt (1), Daniel S. Swetz (1), Paul Szypryt (1,3), Kyle R. Thompson (2), Joel N. Ullom (1), Leila Vale (1), Christopher Walker (2), Joel C. Weber (1,3), and Jason W. Wheeler (2). (1) National Institute of Standards and Technology. (2) Sandia National Laboratories. (3) University of Colorado, Boulder. (P) Presenting Author.
9:20	4	**Log 278. EVALUATION OF ALPHA INDUCED DAMAGE BY ELECTRODEPOSITED Am-241 ON SiC SCHOTTKY DIODE AND SIMULATION WITH ALLPIX2.** Dr. Xue S. (1); Giglio. D. (2); Dr. Spitz, H. (3); Dr. Hoffman K. (2);Dr. Kandlakunta, P. (1); Vasil Hlinka (2) Dr. Cao, L.R. (1)
9:40		**Coffee break**
10:00	5	**Log 512. SURVEY OF ADDITIVE MANUFACTURING SIGNATURES FOR THE PREVENTION OF NUCLEAR PROLIFERATION.** Gladden, B.J.(1,P); Snarr, S.E.(1); Snarr, P.L.(1); Beaman, J.J. (1); Haas, D.A. (1)
10:20	6	**Log 366. SIMULTANEOUS DETERMINATION OF LIGHT ACTINIDES BY ICP-QQQ-MS.** Schramm, L.-M. (1,P); Zok, D. (1); Steinhauser, G. (1). (1) Leinbiz University Hannover, (P) Presenting Author
10:40	7	**Log 433. 3D-PRINTED MICROFLUIDIC EXTRACTION CELLS FOR FIELD-DEPLOYABLE NUCLEAR FORENSICS.** Glennon, K.J.(1,P); Valdovinos, H.F.(1); Parsons-Davis, T.(1); Shusterman, J.A.(1); Gharibyan, N.(1). (1) Lawrence Livermore National Laboratory, (P) Presenting Author.
11:00		
11:30-1		**Lunch break followed by afternoon sessions**

Session R (continued)

1:00 (30 min)	8	**Log 489. ADDITIVE MANUFACTURING OF ACTINIDE- AND FISSION PRODUCT-DOPED SILICA FOR PRODUCTION OF SURROGATE DEBRIS REFERENCE MATERIALS.** Shusterman, J. (1,P); Parsons-Davis, T. (1); Harris, S. (1); Joshipura, I. (1); Henderson, R. (1); Goodell, J. (1); Lee, E. (1); Kuntz, J. (1); Pascall, A. (1); Bandong, B. (1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
1:30	9	**Log 282. METHYLAMMONIUM LEAD IODIDE PEROVSKITE SOLAR CELLS FOR POST-DETONATION MONITORING AND HIGH-ENERGY PHOTON IRRADIATION RESPONSE.** Wyatt Panaccione1, Praneeth Kandlakunta1, Matthew Van Zile2, Marlin Keller1, Xuezeng Dai3, Jinsong Huang3, and Lei Raymond Cao1,2. (1) Nuclear Engineering, Department of Mechanical and Aerospace Engineering, The Ohio State University. (2) Nuclear Reactor Laboratory, College of Engineering, The Ohio State University. (3) Applied Physical Sciences, University of North Carolina at Chapel Hill.
1:50	10	**Log 499. SOURCE PREPARATION AND SPECTRAL ANALYSIS FOR MASSIC ACTIVITY BY DECAY ENERGY SPECTROMETERY USING TRANSITION EDGE SENSORS.** Fitzgerald, R.(1,P), Bergeron, D.E.(1), Essex R.(1), Nour, S.(1); Shaw, G.(1), Verkouteren, R.M.(1). (1) National Institute of Standards and Technology. (P) Presenting Author.
2:10	11	**Log 336. UNCERTAINTY ANALYSIS OF NEAR-FIELD ANTINEUTRINO-BASED SAFEGUARDS.** Dunbrack, M.T. (1,P); Erickson, A.S. (1). (1) Georgia Institute of Technology. (P) Presenting Author.
2:30	12	**Log 521. EXTREMELY HIGH RESOLUTION GAMMA RAY SPECTROMETER FOR THE ANALYSIS OF NUCLEAR FUEL AND REACTOR MATERIALS.** Schreiber, K.A. (1,P), Croce, M.P. (1), McNeel, D.G. (1), Carpenter, M.C. (1), Wessels, A. (3), Ortiz, N. J. (3), Ullom, J. N. (2,3), Gard, J.D. (3), Bennett, D. A., (2), Mates, J.A.B. (3), Imrek, J. (2), Becker, D.T. (2), Swetz, D.S. (2), Schmidt, D.R., (2). (1) Los Alamos National Laboratory, (2) National Institute of Standards and Technology, Boulder (3) University of Colorado Boulder (P) Presenting Author.

3:30-5 **Poster Session**

SESSION S: RADIOCHRONOMETRY TECHNIQUES FOR NUCLEAR FORENSICS

THURSDAY MORNING IN BALLROOM D

ORGANIZED BY THERESA KAYZAR-BOGGS, LOS ALAMOS NATIONAL LABORATORY, USA; MATTHEW HIGGINSON, AWE, UK

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 610. RADIOCHRONOMETRY FOR NUCLEAR FORENSICS.** Gaffney, A.M.(1,P). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
8:40	2	**Log 218. ESTABLISHING DISCORDANCE AS A RADIOCHRONOMETRIC SIGNATURE FOR NUCLEAR FORENSICS INVESTIGATIONS: A MULTI LABORATORY INTERCOMPARISON EXERCISE.** Higginson,M.(1); Dunne,J.(1); Gilligan,C.(1);Cross,S.(1); Kaye,P.(1); Kayzar-Boggs,T.M.(2); Denton,J.S.(2); Edwards,M.A.(2); Sanborn,M.E.(2); Wende, A.M.(2); Chen,C.Y.(3); Eng,C.(3); Gaffney,A.M.(3); Morris,M.N.(3,4); Rolison,J.M.(3). (1) AWE, AWE Aldermaston, RG7 4PR, UK (2) LANL, Nuclear and Radiochemistry Group, Chemistry Division, Los Alamos National Laboratory, Los Alamos, NM 87545, USA. (3) LLNL, Nuclear and Chemical Sciences Division, Lawrence Livermore National Laboratory, 7000 East Avenue, Livermore, CA 94551, USA (4) University of California, Merced, 5200 North Lake Rd., Merced, CA, 95343, USA.
9:00	3	**Log 299. REFINING THE ISOLATION AND PURIFICATION OF PROTACTINIUM FROM URANIUM-NIOBIUM ALLOYS FOR 231PA-235U RADIOCHRONOMETRY FOR NUCLEAR FORENSICS.** Chen, C.Y. (1, P); Kayzar-Boggs, T.M (2); Higginson, M. (3); Denton, J.S. (2); Dunne, J. (3); Edwards, M.A. (2); Eng, C. (1); Engel, J. (2); Gaffney, A.M. (1); Gilligan, C. (3); Morris, M.N. (1, 4); Rolison, J.M. (1); Sanborn, M.E. (2); Wende, A.M. (2). (1) Lawrence Livermore National Laboratory. (2) Los Alamos National Laboratory. (3) Atomic Weapons Establishment. (4) University of California, Merced. (P) Presenting author.
9:20	4	**Log 611. OPTIMIZING THE LANL CHROMATOGRAPHY CHEMISTRY FOR PURIFYING PROTACTINIUM FROM URANIUM-NIOBIUM METALS.** Engel, J.R. (1, P); Denton, J.S. (1); Kayzar-Boggs, T.M. (1); Wende, A.M. (1), Cardon, A.R. (1), Edwards, M.E. (1).(1) Los Alamos National Lab. (P) Presenting Author.
9:40		**Coffee break**
10:00	5	**Log 292. A CONTROLLED URANIUM METAL CASTING EXPERIMENT TO UNDERSTAND RADIOCHRONOMETRY SIGNATURES.** Kayzar-Boggs, T.M. (1, P); Luitjohan, K.E. (1); Imhoff, S.D. (1); LaMont, S.P. (1); Boswell, M. (1); James, M.R. (1); Hudston, L.A. (1); Denton, J.S. (1); Edwards, M.E. (1); Krajewski K.J. (1); Engel, J.R. (1); Wende, A.M. (1); Sanborn, M.E. (1). (1) Los Alamos National Laboratory. (P) Presenting author.
10:20	6	**Log 325. LANL METHODS AND RESULTS IN SUPPORT OF PLUTONIUM RADIOCHRONOMETRY CRM DEVELOPMENT.** Edwards, M.A. (1) (P); Kayzar-Boggs, T.M. (1); Wende, A.M. (1); Maassen, J.R. (1); Sanborn, M.E. (1); Denton, J.S. (1); Krajewski, K.J. (1); Steiner, R.E. (1). (1) Los Alamos National Laboratory (P) Presenter

(continued next page)

Session S (continued)

10:40	7	**Log 285. HIGH-PRECISION MEASUREMENT OF U-Pu-Np-Am-Li CONCENTRATIONS AND ISOTOPE RATIOS IN ENVIRONMENTAL REFERENCE MATERIALS BY MASS SPECTROMETRY.** Goldstein, S.J. (1,P); Price, A.A. (1); Hinrichs, K.A. (1); LaMont, S.P. (1); Nunn, A.J. (1); Amato, R.S. (1); Cardon, A.M. (1); Gurganus, D.W. (1). (1) Nuclear and Radiochemistry Group, Los Alamos National Laboratory. (P) Presenting Author.
11:00	8	**Log 295. GRANDDAUGHTER RADIOCHRONOMETRY FOR NUCLEAR FORENSICS: MODEL AGES FOR CERTIFIED REFERENCE MATERIALS AND URANIUM SAMPLES.** Denton, J.S.(1,P); Wende, A.M.(1); Edwards, M.A.(1), Sanborn, M.E.(1), Kayzar-Boggs, T.M.(1); Steiner, R.E.(1) (1) Los Alamos National Laboratory. (P) Presenting Author.
11:20	9	**Log 364. AGE DETERMINATION OF SE-75 GAMMA RADIOGRAPHY SOURCE MATERIAL.** McLain, D.R. (1,P); Condon, N.J. (1); Brossard, T.W. (1); Tsai, Y. (1); Canaday, J.L. (1). (1) Argonne National Laboratory. (P) Presenting Author.
11:40-1		**Lunch break followed by afternoon sessions**

SESSION T: CURRENT NEEDS AND FUTURE CHALLENGES FOR NUCLEAR AND RADIOLOGICAL REFERENCE MATERIALS AND CALIBRATION PHANTOMS

THURSDAY AFTERNOON IN BALLROOM D

ORGANIZED BY R. ESSEX, NATIONAL INSTITUTE FOR STANDARDS AND TECHNOLOGY, USA; STEFAAN POMMÉ, EUROPEAN COMMISSION, JOINT RESEARCH CENTRE (JRC), BELGIUM

1:00	1	**Log 371. NBL Program Office Nuclear Reference Materials Plans.** Mason, P (1,P); Tourville, A (1); Watters, R (1); Holland, M (1); Englemann, M (2). (1) NBL Program Office, NNSA; (2) Pacific Northwest National Laboratory
1:20	2	**Log 574. HUMAN TISSUE SUBSTITUTES SUITABLE FOR A CLINICAL POLYENERGETIC PHOTON SPECTRUM BETWEEN 40 keV TO 120 keV.** Jimmy Stringer (P), Henry Spitz. University of Cincinnati, College of Engineering & Applied Science, Cincinnati, Ohio 45221-0072
1:40	3	**Log 382. LOS ALAMOS NATIONAL LABORATORY'S OVER 25 YEAR EFFORTS SUPPORTING STANDARD PRODUCTION AND CHARACTERIZATION FOR VARIOUS NATIONAL SECURITY PROGRAMS.** Tandon, Lav (1,P); Colletti, Lisa (1); Eiroa-Lledo, Cecilia (1); Kuhn, Kevin (1); Olson, Angela (1); Walker, Laurie (1); Essex, Richard(2); and Mason, richard (3). (1) Los Alamos National Laboratory, P.O. Box 1663, Los Alamos, NM 87545, USA; (2) National Institute of Standards and Technology, 100 Bureau Drive, Mail Stop 8462, Gaithersburg, MD 20899, USA; (3) New Brunswick Laboratory Program Office, 1 Science.gov Way, Oak Ridge, TN 37830, USA; (P) Presenter
2:00	4	**Log 417. STATISTICAL & GRAPHICAL ANALYSIS OF VARIANCE IN MEASUREMENT ACCURACY ACROSS RADIOANALYTICAL LABORATORIES- 10 YEAR NIST RADIOCHEMISTRY INTERCOMPARISON PROGRAM (NRIP) ASSESSMENT.** Inn, K.G.W.(1,2,P); Johnson, N.(3); Outola, I.(4); Filliben, J.(5). (1) K&E Inn Ovations, Inc. (2) National Institute of Standards and Technology, Retired. (3) University of Maryland, Baltimore County. (4) Formerly National Institute of Standards and Technology. (5) National Institute of Standards and Technology. (P) Presenting Author.
2:20	5	**Log 449. ADDITIVE MANUFACTURING OF SURROGATE DEBRIS REFERENCE MATERIALS AND MICROANALYTICAL STANDARDS.** Parsons-Davis, T.(1, P); Harris, S.L.(1); Sio, C.K.(2); Shusterman, J.(1); Lee, E.(1); Joshipura, I.D.(1); Goodell, J.J.(1); Shih, A.(1); Dory, C.(1); Henderson, R.(1); Ramon, C.(1); Lindvall, R.(1); Wimpenny, J.(1); Kuntz, J.D.(1); Pascall, A.J.(1); Bandong, B.B.(1). (1) Lawrence Livermore National Laboratory. (2) University of Toronto. (P) Presenting Author
2:40	6	**Log 481. METHOD DEVELOPMENT IN SUPPORT OF RECERTIFICATION OF PLUTONIUM CRMS 136, 137, and 138.** K.J. Mathew (1); P. Mason (2); C.F. Ottenfeld (1,P); R. Keller (1)
3:00		
3:30-5		**Poster Session**

SESSION U: NUCLEAR DATA FOR NUCLEAR SECURITY

FRIDAY MORNING IN BALLROOM A

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		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 253. INTEGRAL FISSION PRODUCT CHAIN YIELD MEASUREMENTS AT NCERC.** Bredeweg, T.A.(1,P); Berger, J.(1); Boggs, M.(1); Bond, E.M.(1); Boswell, M.(1); Bowen, S.M.(1); Cox III, D.L.(1); Dembowski, M.(1); Dry, D.E.(1); Flanagan, D.C.(1); Gaunt, A.J.(1); Gooden, M.E.(1); Hanson, S.K.(1); Hudston, L.A.(1); James, M.R.(1); Kinman, W.S.(1); Lance, C.A.(1); Lee, G.(1);Marenco, A.M.(1); Margiotta, C.(1); May, I.(1); Meininger, D.(1); Miller, J.L.(1); Oldham, W.J.(1); Reilly, S.D.(1); Rendon, R.J.(1); Roman, A.R.(1); Romero, J.R.(1); Rundberg, R.S.(1); Smythe, N.(1); White, J.M.(1); Williams, J.W.(1); Wren, M.S.(1); Uhnak, N.E.(2); Haney, M.M.(2); Pierson, B.(2); Greenwood, L.(2); Friese, J.(2); Metz, L.(2) (1) Los Alamos National Laboratory. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
8:40	2	**Log 416. RADIOCHEMICAL MEASUREMENT UNCERTAINTIES & CORRELATIONS – PHASE II [DEEPER INTO THE RABBIT HOLE].** Inn, K.G.W. (1,2,P); McCroan, K.(3); Filliben, J(4). (1) K&E Inn Ovations, Inc. (2) National Institute of Standards and Technology, Retired. (3) US Environmental Protection Agency, National Analytical Radiation Environmental Laboratory. (4) National Institute of Standards and Technology. (P) Presenting Author.
9:00	3	**Log 513. ENERGY DEPENDENCE OF FISSION PRODUCT YIELDS FROM THE MAJOR ACTINIDES.** Gooden, M.E. (1,P); Bredeweg, T.A.(1); Finch,S.(2); Ramirez, A. (3); Silano, J.(3); Tonchev, A. (3); Tornow, W. (2); Wilhelmy, J. (1). (1) Los Alamos National Laboratory;(2) Duke University/Triangle Universities Nuclear Laboratory; (3) Lawrence Livermore National Laboratory.
9:20	4	**Log 529. DICER: A NEW INSTRUMENT FOR NUCLEAR DATA FOR NUCLEAR SECURITY.** Stamatopoulos, A. (1,P); Koehler, P. (1); A. Couture (1); B. DiGiovine(1); Matyskin, A. (2), Mocko, V(2); G. Rusev (2); Ullmann, J. (1); Vermeulen, C. (2). (1) Physics Division, Los Alamos National Laboratory, 87545, NM, USA. (2) Chemistry Division, Los Alamos National Laboratory, 87545, NM, USA
9:40		**Coffee Break**
10:00	5	**Log 555. PRODUCTION OF ACTIVATION SPECIES AT NCERC AND INVESTIGATION OF THE ^{9}Be(n,γ)^{10}Be INTEGRAL CROSS SECTION.** Goodell, J.J.(1,P); Church, J.A.(1); Keith, C.C.(2); Bredeweg, T.A.(2); Pierson, B.(3); Zhao, P.(1); Harward, N.K.(1); Bandong, B.B.(1). (1) Lawrence Livermore National Laboratory. (2) Los Alamos National Laboratory. (3) Pacific Northwest National Laboratory.
10:20	6	**Log 593. NEW APPROACH TO PRECISELY MEASURE GAMMA-RAY INTENSITIES FOR LONG-LIVED FISSION PRODUCTS.** N.D. Scielzo1(P), K. Kolos1, D. E. M. Hoff1, M. Bencomo1, M.T. Burkey1, J.A. Clark2, J.C. Hardy3, V.E. Iacob3, D. Melconian3, E.B. Norman4, W.-J. Ong1, R. Orford4, D. Santiago-Gonzalez2, G. Savard2, M.A. Stoyer1, A. Tonchev1 (1) Lawrence Livermore National Laboratory, (2) Argonne National Laboratory, (3) Texas A&M University, (4) Lawrence Berkeley National Laboratory, (P) Presenting Author

(continued next page)

Session U (continued)

10:40 7 **Log 244. CHARACTERIZING UNCERTAINTY IN THE THERMAL NEUTRON CROSS SECTION FOR THE $^{40}Ca(n,\alpha)^{37}Ar$ REACTION.** Shah, K.A. (1, P); De Luna, B.A. (1); Kaitschuck, N.M. (1); Haas, D.A. (1). (1) The University of Texas at Austin

SESSION V: ADVANCES IN MICROSCOPY, IMAGING, AND SPATIALLY RESOLVED METHODS FOR NUCLEAR FORENSICS AND OTHER APPLICATIONS

FRIDAY MORNING IN BALLROOM B

ORGANIZED BY JAMES BOWEN, PACIFIC NORTHWEST NATIONAL LABORATORY, USA; OLE CHRISTIAN LIND, NORWEGIAN UNIVERSITY OF LIFE SCIENCES, NORWAY; CYNTHIA ZEISSLER, NATIONAL INSTITUTE FOR STANDARDS AND TECHNOLOGY, USA; AND CHLOE BONAMICI, UNIVERSITY OF WISCONSIN-MADISON, USA.

TIME	order	Presentation Title and Speaker
8:00	1	**Log 256. IMAGING THE PLANT UPTAKE OF RADIONUCLIDES ON THE SINGLE-CELL SCALE USING SIMS AND RL-SNMS.** Mandel, Marcus (1); Holtmann, Linus (P)(1); Raiwa, Manuel (1); Wunnenberg, Annika (1); Riebe, Beate (1); Walther, Clemens (1). (1) Institute of Radioecology and Radiation Protection, Leibniz University Hannover. (P) Presenting Author.
8:20	2	**Log 289. SKAPHIA: PRESENTATION OF THE LATEST SHIELDED ELECTRON PROBE MICRO ANALYSER (EPMA).** Robbes, A.S (1); Henderson, C (2); Choi, S (1); Peres, P (1); Defouilloy, C (1); Vuillaume, A (1,P); Jacobson, D (2). (1) CAMECA Gennevilliers, France. (2) CAMECA Inc., USA (P) Presenting Author.
8:40	3	**Log 305. ACTINIS: SHIELDED SIMS FOR ANALYSIS OF HIGHLY RADIOACTIVE SAMPLES.** Peres, P.(1); Choi, S.(1); Defouilloy, C.(1); Renaud, L.(1); Touzalin, N.(1); Vuillaume, A.(1,P); Jacobson, D.(2). (1) CAMECA Gennevilliers, France. (2) CAMECA Inc., US (P) Presenting Author.
9:00	4	**Log 608. CHARACTERIZATION OF ACTINIDE PARTICLE EXPOSURE TO BIOTA USING SYNCHROTRON X-RAY BASED IMAGING TECHNIQUES.** Lind, O.C.(1,2,P); Brede, D.A.(1,2); Byrnes, I.B.(1,2); Garcia-Tenorio, R.(3); Janssens, K.(4); Nuyts, G.(4); Reinoso-Maset, E.(1,2); Rossbach, L.(1,2); Salbu, B.(1,2). (1) Norwegian University of Life Sciences. (2) Centre for Environmental Radioactivity (CoE CERAD). (3) University of Seville. (4) University of Antwerp. (P) Presenting Author.
9:20		**Log 585. SYNCHROTRON X-RAY FLUORESCENCE AND TRANSMISSION IMAGING FOR NUCLEAR SAFEGUARDS.** Ditter, A.(1,P);Ward, J. (2); Miller, M. (2); Coles, R.(3); Bowerman, B.(3); Schoonen, M.(3); Thieme, J. (3); Duffin, A. (2);, Shuh, D. (1); (1) Lawrence Berkeley National Laboratory, (2) Pacific Northwest National Laboratory, (3) National Synchrotron Light Source II.
9:40		**Coffee break**
10:00	5	**Log 423. MICRO-ANALYTICAL TECHNIQUES FOR FAST CHARACTERIZATIONS OF NUCLEAR MATERIALS IN THE FRAME OF NUCLEAR FORENSIC.** Pointurier, F (1, P); Fauré, A.L. (1); Cornaton, M. (1); Marie, O. (1), Hubert, A. (1); Humbert A.C. (1). CEA, DAM, DIF, F-91297 Arpajon, France
10:20	6	**Log 462. ANALYSIS OF ELEMENTAL CONTAMINANTS AND IMPURITIES IN PLUTONIUM METAL USING MICRO-X-RAY FLUORESCENCE.** Worley, C.G. (1,P); McIntosh, K.G.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.
10:40	7	**Log 487. ULTRA-HIGH-RESOLUTION CRYOGENIC X-RAY SPECTROMETER FOR ADVANCED ELECTRON MICROSCOPE ACTINIDE MATERIAL MAPPING.** Carpenter, M. H. (1,P); Mark P. Croce, M. P. (1); McNeel, D. G. (1); Schrieber, K. A. (1); Ullom, J. N. (2); Bennett, D. A. (2); Mates, J. A. B. (2); Gard, J. D. (3); Imrek, J. (3); Becker, D. T. (3); Wessels, A. L. (3); Morgan, K. M. (3). (1) Los Alamos National Laboratory. (2) National

Institute of Standards and Technology, Boulder. (3) University of Colorado, Boulder. (P) Presenting Author.

11:00 8 **Log 533. PLUTONIUM BEHAVIOR IN IRON-RICH SILICATE IMMISCIBILITY REGIONS OF NUCLEAR FALLOUT GLASS.** Genda, T.P. (1,2, P); Matzel, J. E. (2); Dai, Z. R. (2); Balboni, K. (2); Knight, K. B. (1); Hoseman, P. (1). (1) The University of California, Berkeley. (2) Lawrence Livermore National Laboratory.

11:20 9 **Log 309. IDENTIFYING CRYSTALLOGRAPHIC FACES OF URANIA AND THORIA WITH ROTATIONAL POLARIZED RAMAN SPECTROSCOPY.** Phyllis K. Morgan (1); Timothy A. Prusnick (2); Michael A. Velez (3); Karl Rickert (2); David B. Turner (4,P); J. Matthew Mann (1). (1) Air Force Research Laboratory, Sensors Directorate, Wright Patterson AFB, OH 45433, USA. (2) KBR, Dayton, OH, 45431. (3) UES, Inc., Dayton, PH 45431. (4) Azimuth Corporation, Beavercreek, OH, 45431. (P) David B. Turner.

SESSION W: ANALYTICAL AND ELECTROCHEMICAL TECHNOLOGY DEVELOPMENT FOR PYROPROCESSING

FRIDAY MORNING IN BALLROOM C

ORGANIZED BY MICHAEL SIMPSON, THE UNIVERSITY OF UTAH AND A. CO, OHIO STATE UNIVERSITY, USA.

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10 (30 min)	1	**Log 373. SYNTHESIS OF AMERICIUM TRICHLORIDE IN LITHIUM CHLORIDE-POTASSIUM CHLORIDE MOLTEN SALT AND STUDY OF THE ELECTRODEPOSITION REACTION OF AMERICIUM.** Bethany Kersten (1, P), Krista Hawthorne (2), Mark Williamson (2), Rohan Akolkar (1), Christine E. Duval (1). (1) Department of Chemical and Biomolecular Engineering, Case Western Reserve University, 10900 Euclid Ave, 44106 Cleveland, OH, USA. (2) Chemical and Fuel Cycle Technologies Division, Argonne National Laboratory, Lemont, IL, USA (P) Presenting Author.
8:40	2	**Log 294. INVESTIGATING O_2 CERAMIC SENSORS IN MOLTEN $CaCl_2$.** Dale, O.R. (1, P); Felling, F. M. (1); Simpson, M. (1). (1) University of Utah - Materials Science Department
9:00	3	**Log 437. ELECTROCHEMISTRY TO IMPROVE SEPARATION PERFORMANCE AND ANALYSIS OF PURE ALPHA AND BETA NUCLIDES.** Martin Heule (1, P), Paul Dutheil (1)
9:20	4	**Log 450. DEVELOPMENT AND TESTING OF SCHOTTKY CONTACTS ON SiC USING A PNEUMATIC PRINTING SYSTEM.** Safranek, A.W.(1)(P); Kymissis, I.(2); Cao, L.R.(1). (1) The Ohio State University. (2) Columbia University. (P) Presenting Author.
9:40		**Coffee break**
10:00	5	**Log 478. DEVELOPMENT OF GALLIUM OXIDE BASED ULTRAWIDE BANDGAP SEMICONDUCTOR DETECTOR FOR ALPHA SPECTROSCOPY.** Heckert, C.J.(1,P); Taylor N.R.(1,2); Dhara, S. (1); Rajan, S.(1); Cao, L.R. (1); Blue, T. E. (1). (1) The Ohio State University. (2) Oak Ridge National Laboratory
10:20	6	**Log 557. Application of Zero Resistance Ammeter to Real Time Measurement of Redox Control in Molten Chloride Salts.** Gonzalez, M.(1,P); Hamilton, E.(1); Simpson, M.F.(1). (1) The University of Utah, Department of Materials Science and Engineering. (P) Presenting Author.
10:40	7	**Log 580. INFLUENCE OF UNINTENDED CONVECTION ON DIFFUSION COEFFICIENT MEASUREMENT IN HIGH-TEMPERATURE MOLTEN SALT ELECTROCHEMICAL CELL.** Ohk, Seung-min(1,P); Park, Jaeyeong(1). (1) Ulsan National Institute of Science and Technology. (P) Presenting Author.
11:00	8	

SESSION X: ISOTOPE PRODUCTION AND APPLICATIONS: MEDICAL, SPACE, NUCLEAR SECURITY, NONPROLIFERATION, AND GEOCHEMISTRY APPLICATIONS

FRIDAY MORNING IN BALLROOM A

ORGANIZED BY WOLFGANG RUNDE, LOS ALAMOS NATIONAL LABORATORY, USA; DEREK HAAS, UNIVERSITY OF TEXAS, USA.

TIME	order	Presentation Title and Speaker
8:00		**INTRODUCTION AND WELCOME**
8:10	1	**Log 353. PREPARATION OF AN Ac-225 GENERATOR FROM AN OLD U-232/233 SAMPLE AND SUCCESSFUL AC-225 RADIOLABELING OF A NOVEL DOTA 1,2,4,5-TETRAZINE DERIVATIVE.** Pressler, M.(1, 2, P); Denk, C.(2, 3); Scheibelreiter, V.(2); Kuba, W.(2); Mikula, H.(2). (1) Institute of Atomic and Subatomic Physics, TU Wien, 1020 Vienna, Austria. (2) Institute of Applied Synthetic Chemistry, TU Wien, 1040 Vienna, Austria. (3) Center for Labelling and Isotope Production, TRIGA Center Atominstitut, TU Wien, 1020 Vienna, Austria.
8:40	2	**Log 429. TRIGA MARK II PRODUCTION AND ISOLATION OF n.c.a. GOLD-199 - A RADIONUCLIDE WITH PROMISING PROPERTIES FOR MEDICAL APPLICATION.** Denk, C .(1, P), Pressler, M. (1). (1) Center for Labeling and Isotope Production, TU Wien, Atominstitut, 1020 Vienna, Austria.
9:00	3	**Log 492. CORRELATING EFFECTS OF ROCK DAMAGE FROM UNDERGROUND CHEMICAL EXPLOSIVES WITH NATURAL RADON GAS BACKGROUNDS.** Christine Johnson (1, P), Justin Lowrey (1), Xiao Luo (1), Hunter Knox (1), James Knox (1), Benjamin Roberts (1), Mark Rockhold (1), Khiloni Shah (1, 2), Christopher Strickland (1). (1) Pacific Northwest National Laboratory. (2) The University of Texas at Austin. (P) Presenting Author.
9:20	4	**Log 514. RADIONUCLIDES FOR THERANOSTICS APPLICATIONS: MN-52 PRODUCTION BY DEUTERON BEAMS IRRADIATION.** Groppi, F. (1,P); Bianchi, F. (1); Hassan G. (1,2); Manenti, S. (1); (1) LASA Lab., Physics Dept. of Milano University and INFN-MI. (2) College of Science, Physics Dept. Salahaddin University - Erbil, IRAQ. (P) Presenting Author.
9:40		**Coffee break**
10:00	5	**Log 493. ASSESSING Xe-133 GAS TRANSPORT IN SHALLOW ALLUVIUM.** Christine Johnson (1, P), Michael Mayer (1), Justin Lowrey (1), Khiloni Shah (1, 2), Dustin Clelland (1), Jim Fast (1), Brad Fritz (1), Xiao Luo (1), Justin McIntyre (1), Mark Rockhold (1), Signe White (1). (1) Pacific Northwest National Laboratory. (2) The University of Texas at Austin. (P) Presenting Author.
10:20	6	**Log 494. VARIABILITY OF ARGON EMANATION RATES AND RELEVANCE TO PREDICTIONS OF NATURAL ARGON GAS BACKGROUND IN THE SUBSURFACE.** Justin Lowrey (1), Christine Johnson (1, P). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

POSTER SESSION A
MONDAY 3:30-5:30

Sessions Included in poster session A (32 posters total)

- Ultra-sensitive Mass Spectrometric and Radiometric Methods for Environmental and Space Applications
- Environmental Radioactivity
- Advances in the Nuclear Fuel Cycle and Improvements in High Activity Separations Methods including Actinide, Lanthanide, and Fission Products
- Salt Chemistry and Radiochemistry in Support of Molten Salt Reactors
- Advances in Actinide Analytical and Radionuclear Chemistry
- Current Needs and Future Challenges for Nuclear and Radiological Reference Materials and Calibration Phantoms
- Separation Chemistry and Target Preparation for Nuclear Chemistry Experiments
- Isotope Production and Applications: Medical, Space, Nuclear Security, Nonproliferation, and Geochemistry Applications

1 **Log 232. COMPARING THE MORPHOLOGY AND SOLID-STATE STRUCTURE OF UTC3 TO URU3.** Libero, J. (1, P); Koury, D. (1); Poineau, F. (1) (1) UNLV (P) Presenting Author

2 **Log 243. ESTABLISHING CAPABILITIES FOR MOLTEN SALT RESEARCH USING THE SODIUM-POTASSIUM CHLORIDE SYSTEM.** Swinhart, M.(1,2,P); Lonergan, J.(1); Sudowe, R.(2).(1) Pacific Northwest National Laboratories. (2) Colorado State University. (P) Presenting Author.

3 **Log 245. A COMPARATIVE ANALYSIS OF THREE Ti-44/Sc-44 GENERATOR SYSTEMS FOR BENCH-TOP SCALE APPLICATIONS.** Nicole Ahrens (1,P), Ralf Sudowe (1)(1) Colorado State University. (P) Presenting Author.

4 **Log 247. Irradiation of NaCl-KCl-UCl3 Salt with Depleted U for Total Mass Accounting in Advanced Liquid-Fueled Reactors.** Emily Gordon(1,2), Praneeth Kandlakunta(2), Matthew Van Zile(3), Andrew Kauffman(3), Shelly Li(4), Lei R. Cao(2,3). 1. Chemical Engineering Program 2. Nuclear Engineering Program 3. Nuclear Reactor Laboratory 4. University of Utah

5 **Log 248. INVESTIGATING THE ROLE OF CARRIER IN THE ADSORPTION OF SCANDIUM ON DGA UTILIZING A Ti-44/Sc-44 GENERATOR.** Brown, M.L. (1); Boron-Brenner, L.P. (2); Sudowe, R.(1,P). (1) Colorado State University. (2) University of Nevada Las Vegas. (P) Presenting Author

6 **Log 271. RAPID RESPONSE IN VITRO BIOASSAY METHOD FOR THE DETERMINATION OF PU ISOTOPES IN URINE SAMPLES.** Macsik, Z. (1,P); LaMont, S. P.(1); Riggins Cardon, A. M.(1); Hudston, L. A.(1); Steiner, R. E.(1). (1) Los Alamos National Laboratory. (P) Presenting Author.

7 **Log 291. STUDIES IN DUAL DOPING OF URANIUM NITRIDE FOR USE AS ADVANCE TECHNOLOGY FUELS.** Gonzalez L.G. (1,P); Axhage E.(1); Hedberg M.(1); Retegan T.(1). (1) Chalmers Univeristy of Technology. (P) Presenting Author.

8 **Log 293. Incorporating density functional theory modeling to predict the chemical behavior of high-yielding fission products (Cs-137, I-129) in a UO2 framework in conjunction with experimental validity.** Montoya, E. (P)(1); Kim, E. (2); Czerwinski, K. (1); Lowe, R. (1); Swift, A. (1). (1) University of Nevada, Las Vegas (2) University of Texas at El Paso

9 **Log 304. RECENT DEVELOPMENTS ON TELLURIUM SOURCE TERM ANALYSIS IN SEVERE ACCIDENT CONDITIONS.** Pasi, A-E (1,P), (1) Chalmers University of Technology (P) Presenting Author.

10 **Log 310. SYNTHESIS, STRUCTURAL PROPERTIES, AND ELECTRICAL PROPERTIES OF SINGLE CRYSTALS OF ZR-DOPED UO2.** Karl Rickert (1);

David B. Turner (2,P); Timothy A. Prusnick (1); J. Matthew Mann (3). (1) KBR, Dayton, OH, 45431. (2) Azimuth Corporation, Beavercreek, OH, 45431. (3) Air Force Research Laboratory, Sensors Directorate, Wright Patterson AFB, OH 45433, USA. (P) David B. Turner.

11 **Log 312. HARVESTING U-234 FROM HEAT SOURCE PLUTONIUM FOR USE AS A SPIKE SOLUTION.** Carver, Nell; Jump, Robert; Pardington, Paige; Porterfield, Donivan (P). Los Alamos National Laboratory.

12 **Log 339. Large Dynamic Range Measurements Via SIMS and TIMS.** Cunningham, H.S.(1); Zimmer, M.M.(1); Peres, P.(2); Gajos, N.(1); Springer, K.(1); Denny, A.(1); Bowen, J (1, P); Sievers, N.E. (1); Carman, A (1). (1) Pacific Northwest National Laboratory. (2) Cameca Instruments. (P) Presenting Author.

13 **Log 604. PNNL SUPPORT FOR NNSA'S Mo-99 CONVERSION PROGRAM.** Bowen, J.M.(1,P), Hayes, J.C.(1), Ritzmann, A.M.(1), Woods, V.T.(1), Fritz, B.G.(1), Arrigo, L.M.(1), Humble, P.H.(1), Gartman, B.N.(1), Reilly, D.D.(1). 1) Pacific Northwest National Laboratory

14 **Log 360. RADIONUCLIDE REMEDIATION USING NATURAL ASSOCIATION PROCESSES.** Blenke, T.(1,P), Zok, D.(1,P), Steinhauser, G.(1). (1) Leibniz University Hannover, (P) Presenting Author.

15 **Log 363. EVALUATION OF TWO EXTRACTION CHROMATOGRAPHY RESINS FOR SEPARATION OF SCANDIUM AND TITANIUM FOR MEDICAL ISOTOPE PRODUCTION.** McLain, D.R. (1,P); Brossard, T.W.(1); De Kruijff, R.M.(1,2); Kankanamalage, P.H.A.(1); Rotsch, D.A.(1). (1) Argonne National Laboratory. (2) Delft University of Technology. (P) Presenting Author.

16 **Log 374. LOW LEVEL MULTI ION COUNTING FOR URANIUM ON NUTIMS FROM NU INSTRUMENTS.** Cohen, R.(1); Colucci, M.(1); Freedman, P.A.(1); Roberts, D.J(1,P). (1) Nu Instruments.

17 **Log 378. DETERMINATION OF LITHIUM ISOTOPIC COMPOSITION AND CONCENTRATION IN ENVIRONMENTAL COLLECTIONS BY MC-ICP-MS.** Kimberly A. Hinrichs (1), Ronald S. Amato (1), Daniel W. Gurganus (1), Andrew J. Nunn (1), Steven J. Goldstein (1), Allison A. Price (1,P), Stephen P. LaMont (1). (1) Los Alamos National Laboratory. (P) Presenting author.

18 **Log 379. MOLECULAR PLATING OF AM-241 ON A SEMICONDUCTOR DIODE TARGET.** Hoffman, M.K.(1,2); Spitz, H.B.(2); Bissmeyer, P.(2); Mangu, S.(2); Xue, S.(1); Downing, R.G.(1); Hlinka, V.(1); Cao, L.R.(1,3). (1) AwareAbility Technologies, LLC. (2) University of Cincinnati. (3) The Ohio State University.

19 **Log 400. DETERMINATION OF THORIUM IN HEAT SOURCE PLUTONIUM.** Jump, R K, Carver, N R, Matonic, J H, Rim, J.H.(1,P); and Dickson, F P. Los Alamos National Laboratory

20 **Log 407. RETROSPECTIVE ANALYSIS OF PU ISOTOPES IN A BANDED CORAL CORE COLLECTED NEAR THE CACTUS CRATER CONTAINMENT STRUCTURE ON RUNIT ISLAND, ENEWETAK ATOLL.** Hamilton, T.F. (1); Ahren N.L (1,2); Shaw A.C. (1); Tumey S.J. (1) Brown T. (1). (1) Lawrence Livermore National Laboratory. (2) Colorado State University. (P) Terry Hamilton

21 **Log 408. OXIDATION OF CERIUM NITRATE AS A SURROGATE FOR PLUTONIUM IN A MICROFLUIDIC DETECTION AND CHARACTERIZATION SYSTEM.** Williams, B.L. (P), Gelis, A., Corne, F.

22 **Log 438. OBTAINING SPATIAL DATASETS OF ATMOSPHERICALLY PRODUCED COSMOGENIC 10BE/7BE TO FINGERPRINT STRATOSPHERIC DISTURBANCES.** Hidy, A. J. (1, P); Wharton, S. (1); Skinner, S. N. (2); Ehrmann, T. S. (1); Repasch, M. N. (1). (1) Lawrence Livermore National Laboratory. (2) University of Maryland.

23 **Log 453. LEVEL AND DISTRIBUTION OF PU ISOTOPES AND U 236 IN LAGOON AND OFFSHORE WATERS OF RUNIT ISLAND ENEWETAK ATOLL.** Shaw, A.C.(1,P); Hamilton, T.F.(1); Martinelli, R.E.(1); Ahrens, N.L.(1,2); Tumey, S.J.(1);

Brown, T.(1). (1) Lawrence Livermore National Laboratory. (2) Colorado State University. (P) Presenting Author.

24 **Log 474. ANALYSIS OF A MAXIMUM HYPOTHETICAL ACCIDENT FOR A MOLTEN SALT RESEARCH REACTOR.** Bekker, JP (1)(P); Scherr, J.B. (2); Haas, D.A. (1). The Unviersity of Texas at Austin (2) Abilene Christian University

25 **Log 479. EFFECT OF TAILING CORRECTION ON MINOR ISOTOPIC ABUNDANCES: LARGE ENOUGH TO MAKE THE MAJOR ISOTOPE ABUNDANCE PASS OR FAIL IN A PROFICIENCY TEST CAMPAIGN?.** K.J. Mathew (P); C.F. Ottenfeld; N. Butterfield; S. Levesque

26 **Log 516. DETERMINATION OF CF ISOTOPES IN MARK 18A TARGET MATERIAL.** Fenker, K. M. (1,P); DiPrete, D. P.(1); Eldridge, H. W. (2); Armstrong, C. R.(1). (1) Savannah River National Laboratory. (P) Presenting Author.

27 **Log 546. DEVELOPMENT OF A GOLD NANOROD RADIOTRACER .** Dos Santos, A.K.G.(1); Brandao, L.E. (2); Lima, I (1,P).1). (1) Federal University of Rio de Janeiro. (2) Nuclear Engineering Institute.

28 **Log 569. APPLYING PRIMO PROGRAM TO SIMULATE ELEKTA LINAC FOR STANDARD DOSE CALCULATIONS AND TREATMENT PLANNING.** Dang, M.P. (1,2); Pham, N.V.H (3); Hoang, S.M.T. (4,P). (1) Cho Ray Hospital. (2) Nuclear Training Center - VINATOM. (3) Institute for Nuclear Science and Technology – VINATOM. (4) Institute of Applied Technology - Thu Dau Mot University.

29 **Log 576. CRYOGENIC TRACER IRRADIATION FACILITY.** Hudson, C.C. (1,P); Lester, R. (1); Tipping, T.N. (1); Haas, D.A. (1). (1) The Unviersity of Texas at Austin

30 **Log 582. NICKEL-63 SEPARATION AND ANALYSIS IN STAINLESS STEEL.** Zayas, N.(1,P); Zigmond, J.(1); Larson, N.(1); Reese, R.(1); Schoendaller, K.(1); Allen, M.(1). (1) Sandia National Laboratories. (P) Presenting Author.

31 **Log 601. PREVENTING WHITE RESIDUE OR SOLIDIFIED Ca5(PO4)3OH OBSERVED ON PLANCHETTES FOLLOWING ELECTRODEPOSITION WITH N,N-BIS(2-HYDROXYETHYL)-2-AMINOETHANESULFONIC ACID (BES) IN PLUTONIUM BIOASSAY..** Harris, M.N. (1P); Debacker, K.B. (1); Hudston, L.A. (1); Zazueta, J.A.(1); Margiotta, C. (1); Zuniga, M.M. (1); Lamont, S.P. (1); Steiner R.E. (1). (1) Los Alamos National Laboratory.

POSTER SESSION B
TUESDAY 3:30 – 5:30

Topical areas included in poster session B (33 posters total)

- Nuclear Data for Nuclear Security
- Environmental Radioactivity- Field, Laboratory and Modeling Studies
- Forensic Methods, Analysis and Applications of Wide Area Monitoring for Environmental Releases
- Instrumental, Preconcentration, Radiochemical and Speciation Activation Analysis
- Development and Application of Nuclear Analytical Methods with Neutron Beam Technologies
- International Status and Challenges of Radiochemistry Education and Training

1	**Log 202. In situ synthesis of silver nanoparticles in pectin matrix using gamma irradiation for the preparation of antibacterial pectin/silver nanoparticles composite films.** Ardjoum, N., Shankara, S., Salmieria, S., Lacroix, M. INRS Centre Armand Frappier Health & Biotechnology. (P) Monique Lacroix.
2	**Log 209. DEVELOPMENT OF A SENIOR/GRADUATE COURSE IN NUCLEAR FORENSICS.** Landsberger, S.(P); Haas, D. A. The University of Texas at Austin.
3	**Log 210. OPTIMIZATION IN THE DETERMINATION OF SEVERAL RARE-EARTH ELEMENTS USING EPITHERMAL NEUTRON ACTIVATION ANALYSIS.** McKay, Kevin (P); Landsberger, S. The University of Texas at Austin.
4	**Log 211. Natural Occurring Radioactive Material (Norm) In The Oil And Gas Exploration: Field Training In Health And Safety Practices.** Landsberger, S. G. (P); Landsberger, S., Graham, G. The University of Texas at Austin.
5	**Log 212. OPTIMIZATION OF NEUTRON ACTIVATION ANALYSIS OF RARE-EARTH ELEMENTS.** Reis, C. (P); Landsberger, S. University of Texas
6	**Log 214. REDUCING UNCERTAINTIES IN GAMMA-RAY BRANCHING RATIOS OF Cd-115m.** Gordon, E.M.(1,P); De Luna, B.A.(1); Johnson, W. (2); Haas, D.A.(1). (1) The University of Texas at Austin. (2) Air Force Technical Applications Center. (P) Presenting Author.
7	**Log 219. CERTIFICATION OF NEW REFERENCE MATERIALS FOR URANIUM ISOTOPE ANALYSIS AT JRC-GEEL.** Richter, S. (1); Venchiarutti, C. (1), Hennessy, C. (1), Truyens, J. (1), Bujak, R. (1), Aregbe, Y. (1), S. Pommé (1,P); Hexel, C. (2). (1) European Commission, Joint Research Centre, Geel, Belgium, (2) Oak Ridge National Laboratory (ORNL), Oak Ridge, TN, USA. (P) Presenting Author.
8	**Log 223. NEUTRON ACTIVATION ANALYSIS USING GAMMA-GAMMA COINCIDENCE TO ELIMINATE SPECTRAL INTERFERENCES.** Martinez, F. (P); Landsberger, S. The University of Texas at Austin.
9	**Log 228. CHARACTERIZATION OF THE NEUTRON SPECTRUM AND PNEUMATIC TRANSFER SYSTEM FOR A FAST NEUTRON CYCLIC NEUTRON ANALYSIS BEAM-PORT FACILITY.** Pasman, M.P.(1,P); De Luna, B.A.(1);Gordon, E.M. (1);Haas, D.A.(1). (1) The University of Texas at Austin. (P) Presenting Author
10	**Log 238. COMPARING SYNTHETIC TRINITITE TO AUTHENTIC AND REMELTED TRINITITE SAMPLES.** Williams, L.P.(1,P); Koury, D.(1); Poineau, F.(1); Libero, J.(1). (1) University of Nevada, Las Vegas. (P) Presenting Author.
11	**Log 241. FEASIBILITY OF THE USE OF COMPTON SUPPRESSION SPECTROMETRY TO DETERMINE PU-239 IN SOIL.** Egozi, C. (1,P); Landsberger, S.(1); Charlton, W.C.(1); Betts, S.E.(2); Winkler, R.(2). (1) The University of Texas at Austin. (2) Los Alamos National Laboratory. (P) Presenting Author.
12	**Log 246. COMPARISON OF VARIOUS EXTRACTION CHROMATOGRAPHIC RESINS FOR RADIUM ANALYSIS IN FLOWBACK WATERS.** Coupannec, M. (1); Happel, S. (2); Sudowe, R.(1) (1) Colorado State University. (2) TrisKem International.

13	**Log 249. INVESTIGATION OF A HEXACYANOFERRATE(II) NANODIAMOND ADSORBENT FOR THE PRECONCENTRATION OF CESIUM FROM WATER SAMPLES.** Deak, A.T. (1); Sudowe, R.(1,P). (1) Colorado State University. (P) Presenting Author
14	**Log 266. A COMBINATION OF THERMAL AND EPITHERMAL INSTRUMENTAL NAA AS WELL AS CLOUD POINT EXTRACTION PRECONCENTRATION NAA FOR ALUMINUM IN CANADIAN DUPLICATE DIETS.** Eric E. Sullivan, Jason Dalziel, A. Chatt (P). Trace Analysis Research Centre, Department of Chemistry, Dalhousie University, 6274 Coburg Road, Room 212, PO BOX 15000, Halifax, NS, B3H 4R2, Canada. (P) Chatt, A.
15	**Log 267. DETERMINATION OF LOW LEVELS OF ANTIMONY IN SEAWEEDS BY MICELLE-MEDIATED EXTRACTION FOLLOWED BY NEUTRON ACTIVATION.** Serfor-Armah, Y. (1,2); Carboo, D. (3); Akuamoah, R.K. (3); Chatt, A. (1,P). (1) Department of Chemistry, Dalhousie University, Halifax, NS, Canada. (2) School of Nuclear and Allied Sciences, University of Ghana, Atomic-Accra, Ghana. (3) Department of Chemistry, University of Ghana, Legon-Accra, Ghana. (P) Chatt, A.
16	**Log 269. DETERMINATION OF NEUTRON ABSORPTION SELF-SHIELDING FACTORS FOR LANTHANIDE ELEMENTS DURING NEUTRON ACTIVATION ANALYSIS.** Landsberger, S.(P);Kravitz, I.; University of Texas at Austin
17	**Log 274. TAIL HAIR AS A BIOMONITOR OF NUTRITIONAL STATUS OF BEEF CATTLE.** Moreira, G.R.(1); De Nadai Fernandes, E.A.(1); Mazola, Y.T.(1); Bacchi, M.A.(1); Sarriés, G.A.(2); Gonzaga, C.L.(1,P). (1) Nuclear Energy Center for Agriculture, University of São Paulo. (2) College of Agriculture Luiz de Queiroz, University of São Paulo. (P) Presenting Author.
18	**Log 275. A data-driven approach to evaluation of sustainable use of agricultural byproducts for dietary supplements.** Furlan, G.N.(1); De Nadai Fernandes, E.A.(1,P); Bacchi, M.A.(1); Sarriés, S.R.V (1); Sarriés, G.A.(2); Lima, R.C. (1). (1) Nuclear Energy Center for Agriculture, University of São Paulo. (2) College of Agriculture Luiz de Queiroz, University of São Paulo. (P) Presenting Author.
19	**Log 276. PET FOOD CATEGORIZATION BY NEUTRON ACTIVATION ANALYSIS AND DATA SCIENCE .** Lima, R.C. (1); De Nadai Fernandes, E.A.(1,P); Mazola, Y.T.(1); Bacchi, M.A.(1); Sarriés, G.A.(2); Furlan, G.N.(1). (1) Nuclear Energy Center for Agriculture, University of São Paulo. (2) College of Agriculture Luiz de Queiroz, University of São Paulo. (P) Presenting Author.
20	**Log 357. NEUTRON IRRADIATION OF POLYDIMETHYLSILOXANE (PDMS): SWELLING IN XYLENE, RAMAN SPECTRA, MECHANICAL PROPERTIES.** Vopicka, O. (1,P); Durdakova, T-M. (1); Kral, M. (1); Hrdlicka, Z. (1); Vögele, A. (2); Eichler, R. (2); Trtik P. (2,P). (1) University of Chemistry and Technology, Prague, Czechia (2) Paul Scherrer Institut, Villigen, Switzerland. (P) Presenting Author.
21	**Log 377. FREE WEB-BASED GAMMA SPECTROSCOPY TRAINING PROVIDED BY US DOE AND US EPA TO IMPROVE LABORATORY CAPABILITIES.** Fournier, S. (1,P); Enghauser, M. (1); Griggs, J (2); Litman, R. (3) Chapman, J. (4). Gill, J. (5). (1) Sandia National Laboratories. (2) US Environmental Protection Agency. (3) Environmental Management Support , Inc. (4) NNSA NA-84 Office of Nuclear Incident Response Nuclear Emergency Support Team. (5) FEMA Nuclear Incident Response Team
22	**Log 396. NEUTRON ACTIVATION ANALYSIS AND ICP-MS FOR PROVENANCE OF HONEY COLLECTED FROM AMERICAN MIDWEST REGION .** Weilert, T.M. (1, P); Gawenis, J. (1); Ray, C. (1); Brockman, J.D. (1, 2). (1) Department of Chemistry, University of Missouri – Columbia. (2) University of Missouri Research Reactor Center. (P) Presenting Author.
23	**Log 398. DESIGN FOR LONG-TERM DETECTOR BACKGROUND MEASUREMENTS FOR GAS DETECTOR SYSTEMS.** Perea, R.S, Cooper, M.W., Mayer, M.F., Mendez, J.M., Slack, J. L. ; Foxe, M.P. (P) Pacific Northwest National Laboratory. (P) Presenting Author.

24	**Log 411. RADON QUANTIFICATION AND REJECTION LEVEL DETERMINATION.** Mayer, M.F. (1); Cooper, M.W (1); Ely, J.H. (1); Hayes, J.C. (1), Foxe, M.P. (1,P). (1) Pacific Northwest National Laboratory.
25	**Log 434. EVALUATION OF TWO AG1 - X8 COLUMNS FOR RAPID SEPARATION OF MULTIPLE RADIONUCLIDES.** Staci Herman, Leah M. Arrigo, Ean Arnold, Morgan M. Haney, Lindsay Irwin, Bethany Lawler, Chelsie Beck (P). Pacific Northwest National Laboratory
26	**Log 490. THE IMPACT OF SILVER ON THE ANALYSIS OF URANIUM BY KINETIC PHOSPHORESCENCE ANALYSIS.** Arnold, Ean (1); Uhnak, Nic (1); Metz, Lori (1); Beck, Chelsie (1,P). (1) Pacific Northwest National Laboratory
27	**Log 446. REDUCTION OF RADIOACTIVE INTERNAL CONTAMINATION AMONG THE MEDICAL PERSONNEL OF NUCLEAR MEDICINE FACILITES WITH THE USE OF RESPIRATORY TRACK PROTECTION MEASURES .** Brudecki, K. (1); Borkowska, E. (2); Gorzkiewicz, K. (1); Kostkiewicz, M. (2); Misiak, R. (1), Nalichowska, E.(1); Mróz, T. (3). (1) Institute of Nuclear Physics, Polish Academy of Sciences, Radzikowskiego 152, 31-342, Kraków, Poland. (2) Nuclear Medicine Department, John Paul II Hospital, Prądnicka 80, Kraków, Poland, (3) Institute of Physics, Jagiellonian University, Łojasiewicza 11, 30-348, Kraków, Poland NationalLaboratories. (3) Georgia Institute of Technology. (P) Presenting Author.
28	**Log 461. STRONTIUM AND CESIUM ABSORPTION CAPACITY OF NATURAL ZEOLITIC MATERIALS.** Grill, V.(1); Welch, J.M.(2,P); Foster, M.(2); Sterba, J.H.(2); Streli, C.(3). (1) Radiation Protection and Radiochemistry, AGES, Vienna, Austria. (2) Center for Labelling and Isotope Production, TRIGA Center Atominstitut, TU Wien, Vienna, Austria. (3) Atominstitut, TU Wien, Vienna, Austria. (P) Presenting Author.
29	**Log 480. UNCERTAINTY BUDGETS FOR MINOR ISOTOPE RATIOS OF PLUTONIUM: AN EVALUATION BASED ON TRACEABLE STANDARDS FROM NBL.** K.J. Mathew; C.F. Ottenfeld; N. Butterfield(P);
30	**Log 554. ACTIVATION ANALYSIS OF PRECAST CONCRETE IRRADIATED DURING PROTON FLASH-RADIOTHERAPY .** Sriharsha Mangu, Henry Spitz (P) , Michael Lamba, SE Glover. University of Cincinnati
31	**Log 561. ASSESSING AIR POLLUTION WITH SPANISH MOSS AS AN BIOINDICATOR IN THE LOW COUNTRY OF SAVANNAH RIVER BASIN.** Hall, C.(1); Nangeelil, K.(1); Lassel, S.(2); Frey, W.(3);Sun, Z.J.(1). (1) Unviersity of Nevada Las Vegas. (2)North Carolina State University. (3)Unviersity of California Davis (P) Hall, C.
32	**Log 562. DETERMINING TRACE ELEMENTS IN COTTON SEEDS WITH INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS (INAA).** Nangeelil, K.(1); Lassel, S.(2);Sun, Z.J.(1). (1) Unviersity of Nevada Las Vegas. (2)North Carolina State University. (P) Nangeelil, K.
33	**Log 563. FORGERY IDENTIFICATION OF HETIAN JADE WITH INSTRUMENTAL NUCLEAR ACTIVATION ANALYSIS (INAA).** Dimpfl, P.(1); Mamtimin, M(2); Sun, Z.J.(1). (1) Unviersity of Nevada Las Vegas. (2)Halliburton. (P) Sun, Z.J.
34	**Log 568. APPLYING INAA METHOD TO ASSESS THE NUTRITIONAL COMPOSITION OF EDIBLE BIRD'S NEST IN VIETNAM.** Truong, TS. (1,2); Hoang, S.M.T. (3,P). (1) Ho Chi Minh City University of Education. (2) Nuclear Training Center - VINATOM. (3) Institute of Applied Technology - Thu Dau Mot University.
35	**Log 571. HEALTH RISK ASSESSMENT OF Cannabis Sativa L. PRODUCTS BY Po-210 AND Pb-210.** Wieczorek, J.(1,P); Borylo, A.(1); Kaczor, M.(1); Skwarzec, B.(1,); . (1) Faculty of Chemistry of the University of Gdansk
36	**Log 609. COMPARISON OF NEUTRON ACTIVATION ANALYSIS AND PASSIVE COUNTING FOR ENVIRONMENTAL RADIOACTIVITY MEASUREMENTS.** Kaitschuck, N.(P);Bekker, JP.; Haas, D.A.; Landsberger.S.

POSTER SESSION C
WEDNESDAY 3:30 – 5:30

Topical areas included in poster session C (25 posters total)

- Advances in Microscopy, Imaging, and Spatially Resolved Methods for Nuclear Forensics
- Actinide Mass Spectrometry for Treaty Monitoring and Nuclear Forensics
- Advances in Gamma Spectrometry Methods, Instrumentation, and Software in in the Laboratory and in the Field
- Neutron Imaging Technologies and Applications
- Emerging technologies in Nuclear Nonproliferation.

1	**Log 356. NEUTRON IMAGING OF LIQUID-GAS MENISCUS FOR PARA-XYLENE EXPOSED TO 100 BAR METHANE.** Vopicka, O. (1,P); Durdakova, T-M. (1); Cihal, P. (1); Boillat, P. (2); Trtik P. (2,P). (1) University of Chemistry and Technology, Prague, Czechia (2) Paul Scherrer Institute, Villigen, Switzerland. (P) Presenting Author.
2	**Log 365. HIGH-ENERGY X-RAY IMAGING FOR NUCLEAR FORENSICS.** McLain, D.R. (1,P); Almer, J.D. (1); Sharma, H. (1); DeAngeles, K.J. (1); Condon, N.J. (1). (1) Argonne National Laboratory. (P) Presenting Author.
3	**Log 369. THE MICROGE™: A NEW PORTABLE AND RUGGED HIGH-PERFORMANCE HPGE DETECTOR SUITABLE FOR CHALLENGING APPLICATIONS.** Ilie, G. (1, P); Masseron, J. (1, P); Marian, V. (1); Ralet, D. (1); Legras, J.B. (1); Ginsz, M. (1); Brocard, N. (1); Quirin, P. (1). (1) Mirion Technologies (P) Expected Presenting Author
4	**Log 375. MULTISTATIC NEGATIVE ION MEASUREMENTS INSTRUMENTS.** Cohen, R.(1); Colucci, M.(1); Freedman, P.A.(1); Roberts, D.J(1,P). (1) Nu Instruments.
5	**Log 387. ENHANCING SENSITIVITY AND SELECTIVITY TO METASTABLE NUCLEAR ISOMERS IN MIXED FISSION PRODUCTS USING TEMPORAL LSC-GATED HPGE GAMMA SPECTROMETRY.** Archambault, B.C.(1,P); Pierson, B.D.(1); Seiner, B.N.(1); Estrada, J.H.(1); Metz, L.A.(1);Friese, J.I.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
6	**Log 389. ADDITIVE MANUFACTURING FOR NUCLEAR NONPROLIFERATION.** Cannon, N.L. (1,P); Biegalski, S.R. (1); Erickson, A. (1). (1) Georgia Institute of Technology.
7	**Log 390. RESULTS FROM THE FIRST DEPLOYED ULTRA-HIGH-RESOLUTION MICROCALORIMETER GAMMA SPECTROMETER.** Croce, M.P (1,P); Carpenter, M.H. (1); Schreiber, K.A. (1); McNeel, D.G. (1); Ortiz, N.J (3) Wessels, A.L. (3); Becker, D.T (3); Imrek, J. (2); Gard, J.D. (3); Mates, J.A.B. (2); Bennett, D.A. (2); Schmidt, D. (2); Vale, L. (2); Swetz, D.S. (2); Ullom, J. (2). (1) Los Alamos National Laboratory, (2) National Institute of Standards and Technology, (3) University of Colorado.
8	**Log 394. HUNTING FOR NEW ELEMENTAL SIGNATURES FROM UNDERGROUND NUCLEAR EXPLOSIONS ON THE BENCHTOP.** Christine M. Johnson(1,P); Liezers M. (1) ; Carman A.J. (1). (1) Pacific Northwest National Laboratory, (P) Presenting Author.
9	**Log 397. FAST NEUTRON DIRECTIONALITY FROM POSITION-SENSITIVE RECOIL AND CAPTURE RECONSTRUCTION USING BAYESIAN UPDATING.** Wu, T. C (1,P); Li, V. A. (2); Sutanto, F. (2); Dazeley, S. (2); Jovanovic, I. (1). (1): University of Michigan Department of Nuclear Engineering and Radiological Sciences, Ann Arbor, MI, USA; (2) Lawrence Livermore National Laboratory, Livermore, CA, USA.

10	**Log 405. RAPID DISSOLUTION OF SURROGATE NUCLEAR DEBRIS AND ANALYSIS OF RARE EARTH ELEMENTS USING HPIC WITH GAMMA RAY SPECTROMETRY.** Bradley, V. C., Brockman, J. D.
11	**Log 424. GEANT4 MODELING OF CsPbBr3 AND Cs3Bi2I9 GAMMA DETECTORS.** Han, C.(1); Barzilov, A.(1,P). (1) University of Nevada Las Vegas. (P) Presenting Author.
12	**Log 452. QUALITATIVE ASSESSMENT OF URANIUM ORE CONCENTRATES AND RELATED MATERIALS USING SCANNING ELECTRON MICROSCOPY.** Said, M.(1, P); Marks, N.E.(1); Dai, Z.(1); Roberts, S.(1); Sharp, M.(1); Lindvall, R.E.(1). (1) Lawrence Livermore National Laboratory. (P) Presenting Author.
13	**Log 456. LASER INDUCED FLUORESCENCE AND IMAGE ANALYSIS FOR MONITORING ENVIRONMENTAL CONTAMINATION IN BIOTA.** Truax, K. (1,P); Dulai, H. (1); Misra, A. (1); Kuhne, W. (2); and Fulkey, P. (1). (1) University of Hawaii at Manoa. (2) Savannah River National Laboratory.
14	**Log 457. IMPROVING HIGH THROUGHPUT GAMMA SPECTROMETRY ANALYSIS BY IDENTIFYING PROBLEMATIC SPECTRA USING MACHINE LEARNING.** Truax, K. (1,P); Dulai, H. (1); Garces, M. (1); Bowyer, T. (2); Friese, J. (2); and Metz, L. (2). (1) University of Hawaii at Manoa. (2) Pacific Northwest National Laboratory.
15	**Log 466. SOURCE CHARACTERIZATION OF DD NEUTRON GENERATOR.** Mukhopadhyay, S. (1, P); Nelson, W. (1); Irvin, V. (1); Hertel, N.E. (1). (1) Georgia Institute of Technology
16	**Log 500. SEPARATION OF URANIUM FROM THORIUM IN SUPPORT OF PARTICLE REFERENCE MATERIAL PRODUCTION.** Chelsie L. Beck (1,P) Ean S. Arnold (1), Evan J. Warzecha(1), Katherine Koh(1), Riane E. Stene(1), Timothy R. Pope(1), Neil Henson(1), Stephan Vogt(1), Matthew S. Wellons (2), Christopher A. Barrett(1) 1 Pacific Northwest National Laboratory, Richland, WA 2 Savannah River National Laboratory, Aiken, SC
17	**Log 509. Implementation of Low-Temperature Detectors for Nuclear Materials Analysis.** D.T. Becker(1, P), B.K. Alpert(2), D.A. Bennett(2), D.E. Bergeron(2), M. H. Carpenter(3), M. Croce(3), R.M. Essex(2), R.J. Fitzgerald(2), J.W. Fowler(1,2), J. D. Gard(1), G.C. Hilton(2), A.S. Hoover(3), J. Imrek(1), K.E. Koehler(3), J.A.B. Mates(2), D.J. Mercer(3), K.M. Morgan(1), N.J. Nakamura(2), S. Nour(2), G.C. O'Neil(2), N.J. Ortiz(2), C.D. Reintsema(2), D.R. Schmidt(2), K.A. Schreiber(3), G.A. Shaw(2), D.S. Swetz(2), P. Szypryt(2), J.N. Ullom(1,2), L.R. Vale(2), R.M. Verkouteren(2), D.T. Vo(3), S.L. Weidenbenner(3), A. Wessels(1), D. Yan(2), (1) University of Colorado, Boulder, Colorado, USA, (2) National Institute of Standards and Technology, Boulder, Colorado, USA, (3) Los Alamos National Laboratory, Los Alamos, New Mexico, USA, (P) Presenting Author
18	**Log 515. PREPARATION OF URANIUM TETRAFLUORIDE MICROSPHERES USING AMMONIUM BIFLUORIDE.** Jang, H.(1,P); Louis-Jean, J.(1); Poineau, F.(1). (1) University of Nevada, Las Vegas. (P) Presenting Author.
19	**Log 522. ACTINIDE CHEMICAL SPECIATION FROM ULTRA-HIGH-RESOLUTION CRYOGENIC X-RAY EMISSIONS SPECTROSCOPY.** Daniel G. McNeel (1,P); Matthew H. Carpenter (1); Mark P. Croce (1); Katherine A. Schreiber (1); Joel Ullom (2); Douglas Bennett (2); John A. B. Mates (2); Johnathon Gard (3); Jozsef Imrek (3); Daniel Becker (3); Abigail Wessels (3); Kelsey Morgan (3). (1) Los Alamos National Laboratory, (2) National Institute of Standards and Technology, Boulder, (3) University of Colorado, Boulder, (P) Presenting Author.
20	**Log 548. GAINING INSIGHT AND CERTAINTY ON UNCERTAINTY WITH THE ISOCS UNCERTAINTY ESTIMATOR TOOL.** Ilie, G. (1); Sullivan, D. F. (1,P); Persson, H. (1); (1) Mirion Technologies Meriden.
21	**Log 586. 236U/238U MEASUREMENTS IN URANIUM ORE CONCENTRATES VIA ACCELERATOR MASS SPECTROMETRY.** Dorais, C. (1,P); Tumey, S.J. (1); Marks, N.E. (1); Brennecka, G.A. (1). (1) Lawrence Livermore National Laboratory, (P) Presenting Author.

22	**Log 592. MAPPING URANIUM ISOTOPIC CONTENT AT THE NANOSCALE IN A NON-UNIFORM FUEL PELLET USING EXTREME ULTRAVIOLET LASER ABLATION MASS SPECTROMETRY.** Rush, L.A.(1,P); Cliff, J.B.(2); Reilly, D.D.(2); Duffin, A.M.(2); Menoni, C.S.(1). (1) Colorado State University. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
23	**Log 596. PULSE SHAPE DISCRIMINATION USING A COMPACT ASIC-BASED DATA ACQUISITION SYSTEM.** Wu, T. C (1,P); Li, V. A. (2); Sutanto, F. (2); Dazeley, S. (2); Jovanovic, I. (1). (1): University of Michigan Department of Nuclear Engineering and Radiological Sciences, Ann Arbor, MI, USA; (2) Lawrence Livermore National Laboratory, Livermore, CA, USA.
24	**Log 603. ICP-MS MEASUREMENTS OF U AND NP SEPARATED FROM PU METAL.** Bartlett, J.H. and Aragon, S.M. (P)
25	**Log 612. REAL-TIME RARE ISOTOPE HARVESTING, DETECTION AND IMAGING UTILIZING A HPGE NUCLEAR PHYSICS IMAGER.** Clause, H.K. (1,2); Domnanich, K.A. (1,2); Kleinfeldt, C. (1,2); Kalman, M. (1,2); Walker, W. (1,2); Vyas C. (1,2); Abel E.P. (1,2); Severin G.W. (1,2); Hull, E. L. (3); Kiser, M.R. (3); Longford, C.P.D. (3,P). Department of Chemistry, Michigan State University; (2) Facility for Rare Isotope Beams, Michigan State University; (3) PHDS Co. Knoxville.; (P) Presenting Author.
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POSTER SESSION D
THURSDAY 3:30 – 5:30

Topical areas included in poster session D (27 posters total)

- Application of Nuclear Techniques to Treaty Monitoring

1	**Log 215. MODELING THE USE OF MOBILE MODULAR GAS SAMPLERS IN NEAR-FIELD DETECTION USING HYSPLIT.** Gordon, E.M.(1,P); Adhikari, P.(1); Haas, D.A.(1). (1) The University of Texas at Austin. (P) Presenting Author.
2	**Log 216. PORTABLE MODULAR GAS SAMPLERS FOR NUCLEAR EXPLOSION MONITORING.** Shah, K.A. (1, P); Gordon, E.M. (1); Adhikari, P. (1); Allen, M.I. (1); Barth, B.S. (1); Bekker, J.P. (1); Byers, M.E. (1); Fowler, E.P. (1); Hudson, C.C. (1); Kaitschuck, N.M. (1); Wiser, R.S. (1); Wiser, W.S. (1); Haas, D.A. (1). (1) The University of Texas at Austin
3	**Log 229. A RADIOCHEMICAL METHOD FOR THE RAPID SEPARATION OF COPPER FROM FISSION PRODUCTS AND MATRIX ELEMENTS.** Melinda S Wren (1,P); Iain May (1); Susan M K Hanson (1). (1) Chemistry Division, Los Alamos National Laboratory, Los Alamos, NM 87545. LA-UR-21-31946.
4	**Log 313. COMPARING URANIUM RADIOCHRONOMETRY AGES DETERMINED BY SINGLE-COLLECTOR AND MULTI-COLLECTOR ICP-MS AT LOS ALAMOS NATIONAL LABORATORY.** Wende, A.M.(1,P); Denton, J.S.(1); Kayzar-Boggs, T.M.(1); Inglis, J.D.(1); Edwards, M.A.(1); Sanborn, M.E.(1); Steiner, R.E. (1) Los Alamos National Laboratory. (P) Presenting Author.
5	**Log 321. CHARACTERIZATION OF SPECTRAL SIGNATURES AND PARTICULATE FORMATION FOR A BETTER UNDERSTANDING OF NUCLEAR FIREBALL CHEMISTRY.** E.N. Weerakkody (1,P); D.G. Weisz (1); B. Koroglu (1); E. Balboni (1); N.G. Glumac (2). (1) Lawrence Livermore National Laboratory; (2) University of Illinois at Urbana-Champaign; (P) Presenting Author.
6	**Log 329. NETWORK OPTIMIZATION FOR TREATY MONITORING.** Eslinger, P.W.(1), Miley, H.S.(1,P), Schrom, B.T.(1). (1) Pacific Northwest National Labotoratory
7	**Log 332. COMBINING AEROSOL AND NOBLE GAS SAMPLES IN SOURCE-LOCATION ANALYSES.** Eslinger, P.W.(1), Miley, H.S.(1, P), Schrom, B.T.(1). (1) Pacific Northwest National Labotoratory
8	**Log 343. CHARACTERIZATION OF PIPS DETECTORS FOR MEASUREMENT OF RADIOXENON.** Sobel, P.W.(1,P); Biegalski, S.R.(1). (1) Georgia Institute of Technology. (P) Presenting Author.
9	**Log 344. COINCIDENCE MEASUREMENTS OF RADIOXENON USING PASSIVE IMPLEMENTED PLANAR SILICON (PIPS) DETECTOR.** Wilson, C.R. (P)
10	**Log 402. THE USE OF INTERNATIONAL MONITORING SYSTEM STATIONS TO DETECT EVIDENCE OF SEISMIC EVENTS THROUGH THE DISPLACEMENT OF NATURAL RADON ISOTOPES.** Burnett, J. L. (1); O'Mara, R.P. (1, P). (1) Pacific Northwest National Laboratory
11	**Log 414. STUDY OF HISTORICAL BOMARC NON-CRITICAL WEAPON ACCIDENT DEBRIS.** Heffelfinger, A. J. (1), Varshney, G. (1,P), Bickley, A. A. (1) and Petrosky, J. C. (1)(1) Department of Engineering Physics, Air Force Institute of Technology, 2950 Hobson Way, Wright-Patterson AFB, OH 45433, USA, (P) Presenting Author
12	**Log 418. COMPARISON OF RADIOXENON ANALYSIS ALGORITHM RESULTS.** Cooper, M.W.(P); Abromeit, B.L.; Ely, J.H.; Harper, W.W.; Hayes, J.C.; Mayer, M.F.; Panisko, M.E.; Foxe, M.P.; Slack, J.L. Pacific Northwest National Laboratory. (P) Presenting Author.
13	**Log 445. RADIOXENON SIGNATURES OF MOLTEN SALT REACTORS.** Mitchell, M. (1,P); Sobel, P. (1), Kazaroff, K. (1), Biegalski, S.R. (1) (1) Georgia Institute of Technology.

14	**Log 463. METHODS OF UTILIZING RADIOXENON STATIONS AND LABORATORIES FOR NUCLEAR EXPLOSION MONITORING.** Michael Foxe (P), Michael Mayer, Jennifer Mendez, Johnathan Slack, Theodore Bowyer, Matt Cooper, Ian Cameron, James Hayes, Rose Perea
15	**Log 465. ANALYSIS UPDATES UTILIZED FOR A SILICON BETA CELL FOR RADIOXENON DETECTION.** Johnathan Slack, Michael Foxe (P), Michael Mayer. Pacific Northwest National Laboratory.
16	**Log 473. PRODUCTION OF XENON-135 FROM ISOTOPICALLY ENRICHED XENON-134 AND XENON-136 TARGETS .** Horkley, J.J (P)(1); Brookhart, J.L.(1); Cardenas, E.S.(1); Carney, K.P (1); Hines, C.(2); Houghton, T.P(1); Robinson, T. A.(1); Watrous, M. G.(1). (1) Idaho National Laboratory. (2) Washington State University. (P) Presenting Author.
17	**Log 475. SOL-GEL PARTICLE SYNTHESIS AS A BOTTOM-UP METHOD FOR PRODUCTION OF SURROGATE NUCLEAR EXPLOSIVE DEBRIS.** Justin T. Cooper(1,P), George L. Diehl(2), Robert Lusk(1), Kevin Carney(1), Thomas V. Holschuh(1), David Chichester(1), Mathew S. Snow(1). (1) Idaho National Laboratory. (2)University of Utah.
18	**Log 495. AN OVERVIEW OF SIMULATED RADIONUCLIDE RELEASE SIGNATURES FROM A TYPICAL MODERN MEDICAL ISOTOPE PRODUCTION FACILITY.** Justin Lowrey (1), Christine Johnson (1, P), Jacob Inman (1), Judah Friese (1), Harry Miley (1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.
19	**Log 496. DIFFERENTIAL ADVECTIVE TRANSPORT OF VARIOUS NOBLE GASES THROUGH CONSOLIDATED ROCK CORES.** Tara Scarborough (1, 2), Justin Lowrey (1), Mark Rockhold (1), Tom Wietsma (1), Christine Johnson (1, P), Derek Haas (2), Joseph Lapka (2). (1) Pacific Northwest National Laboratory. (2) The University of Texas at Austin. (P) Presenting Author.
20	**Log 528. ANALYSIS OF ACTIVATED ELEMENTS IN MODERN URBAN ENVIRONMENTS.** Phelps, J.(1,P); Baciak, J.(1); (1) The University of Florida. (P) Presenting Author.
21	**Log 589. RADIONUCLIDE SIGNATURES FROM COMPLEX RELEASES OF VENTED FISSION PRODUCTS.** Gordon, E.M.(1,P); Adhikari, P.(1); Lowrey, J.(2); Johnson, C.(2); Ely, J.(2);Haas, D.A.(1). (1) The Unviersity of Texas at Austin. (2) Pacific Northwest National Laboratory (P) Presenting Author.
22	**Log 599. QUANTIFYING THE POTENTIAL ARGON DETECTION CAPABILITIES FOR NUCLEAR EXPLOSION MONITORING.** Adhikari, P (1,P); Gordon, E.M. (1); Shah, K.A. (1); Eslinger, P.W. (2); Ely, J.H. (2); Miley, H.S. (2); Bowyer, T.W. (2); Haas, D.A. (1). (1) The University of Texas at Austin. (2) Pacific Northwest National Laboratory. (P) Presenting Author.
23	**Log 602. NON-RADIOACTIVE FISSION GAS ANALYSIS FROM HIGHLY IRRADIATED UO2 FUEL .** Mark D. Engelmann (1,P),Liezers M.(1); Carman A.J.(1); Hilton C.D.(1); Reilly D.D.(1); Feldman J.D.(1); Springer K.W.(1) Eiden G.C.(1). (1) Pacific Northwest National Laboratory. (P) Presenting Author.

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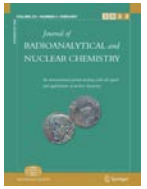

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