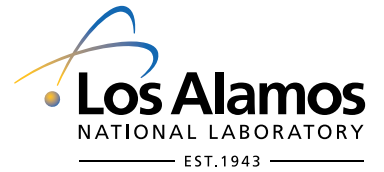




ANS Meetings



Plutonium Futures—The Science 2018

A Topical Conference on Plutonium and Actinides

Official Program

September 9-14, 2018
Wyndham San Diego Bayside
San Diego, California, USA

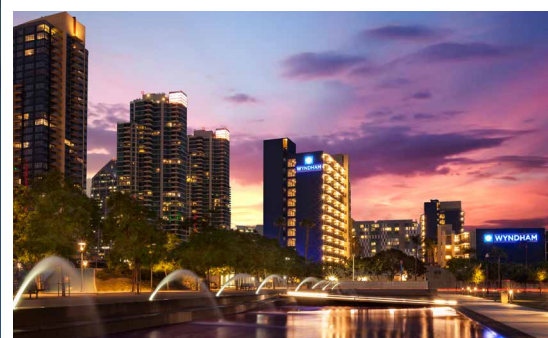
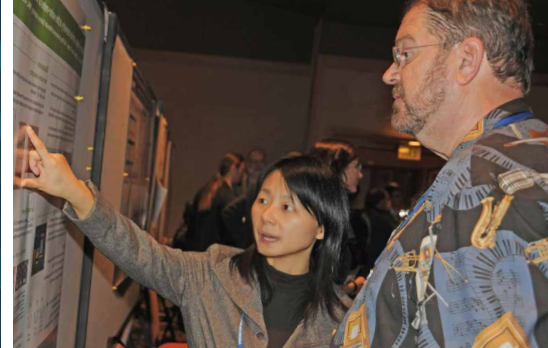
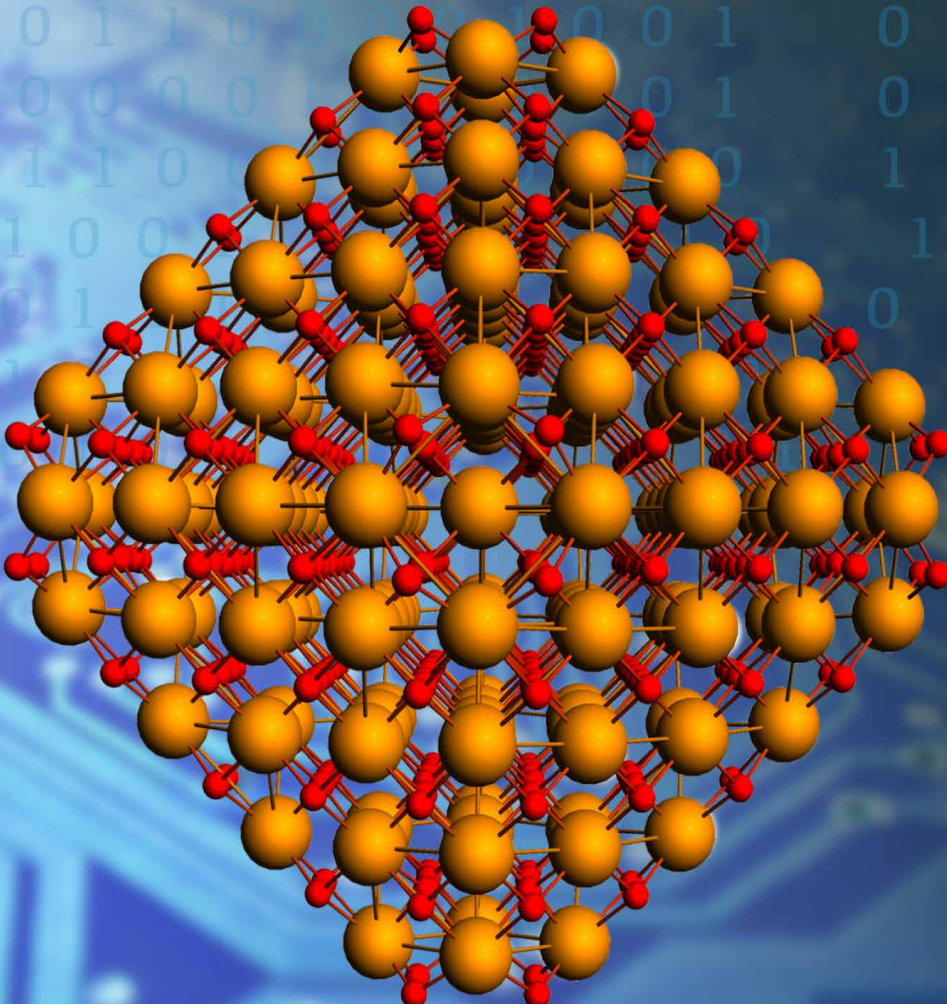
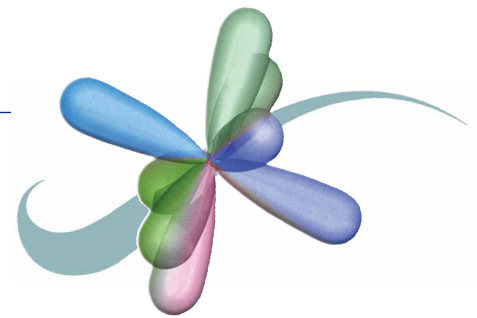


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Organizing Committee

Plutonium Futures–The Science 2018

A Topical Conference on Plutonium and Actinides



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(LANL)



GENERAL CO-CHAIR
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David Clark (*Los Alamos National Laboratory*)

Scott McCall (*Lawrence Livermore National Laboratory*)

Daily Schedule

Sunday, September 9

| | | |
|-------------------|--------------------|--------------------|
| 5:00 pm – 7:00 pm | Registration | Pacific Foyer |
| 1:00 pm – 1:50 pm | Tutorial Session 1 | Coast Room |
| 2:00 pm – 2:50 pm | Tutorial Session 2 | Coast Room |
| 3:00 pm – 3:50 pm | Tutorial Session 3 | Coast Room |
| 4:00 pm – 4:50 pm | Tutorial Session 4 | Coast Room |
| 6:00 pm – 8:00 pm | Welcome Reception | Loma Vista Terrace |

Monday, September 10

| | | |
|---------------------|---|--------------------------|
| 7:30 am – 4:30 pm | Registration | Pacific Foyer |
| 7:30 – 8:30 am | Morning Coffee Break | Pacific Foyer |
| 8:15 am – 8:30 am | Welcome | Pacific AB |
| 8:30 am – 9:45 am | Plenary Session—I | Pacific AB |
| 9:50 am – 12:20 pm | Technical Sessions • Metallurgy and Materials Science—I • Environmental Chemistry—I | Pacific AB Coast Room |
| 10:20 am – 10:35 am | Morning Break | Pacific Foyer |
| 12:30 pm – 2:30 pm | Working Lunch/ Poster Session 1 | Pacific CD |
| 2:30 pm – 3:45 pm | Plenary Session—II | Pacific AB |
| 3:50 pm – 6:20 pm | Technical Sessions • Nuclear Fuel Cycle—I • Solution and Gas Phase Chemistry—I | Pacific AB Coast Room |
| 4:20 pm – 4:35 pm | Afternoon Break | Pacific CD |

Tuesday, September 11

| | | |
|---------------------|--|--------------------------|
| 7:30 – 8:30 am | Morning Coffee Break | Pacific Foyer |
| 8:00 am – 4:30 pm | Registration | Pacific Foyer |
| 8:30 am – 9:45 am | Plenary Session—III | Pacific AB |
| 9:50 am – 12:20 pm | Technical Sessions • Metallurgy & Materials Science • Environmental Chemistry—II | Pacific AB Coast Room |
| 10:20 am – 10:35 am | Morning Break | Pacific CD |
| 12:30 pm – 2:30 pm | Working Lunch/ Poster Session 2 | Pacific CD |
| 2:30 pm – 3:45 pm | Plenary Session—IV | Pacific AB |
| 3:50 pm – 6:20 pm | Technical Sessions • Nuclear Fuel Cycle II • Solution and Gas Phase Chemistry—II | Pacific AB Coast Room |
| 4:20 pm – 4:35 pm | Afternoon Break | Pacific CD |

Daily Schedule

Wednesday, September 12

| | | |
|---------------------|--|--------------------------|
| 7:30 – 8:30 am | Morning Coffee Break | Pacific Foyer |
| 8:00 am – 11:00 am | Registration | Pacific Foyer |
| 8:30 am – 9:45 am | Plenary Session—V | Pacific AB |
| 9:50 am – 12:20 pm | Technical Sessions <ul style="list-style-type: none"> • Detection and Analysis—I • Surface Science and Corrosion—I | Pacific AB Coast Room |
| 10:20 am – 10:35 am | Morning Break | Pacific Foyer |
| 7:00 pm – 9:00 pm | Banquet & After Dinner Speaker | Pacific CD |

Thursday, September 13

| | | |
|---------------------|--|--------------------------|
| 7:30 – 8:30 am | Morning Coffee Break | Pacific Foyer |
| 8:00 am – 4:30 pm | Registration | Pacific Foyer |
| 8:30 am – 9:45 am | Plenary Session—VI | Pacific AB |
| 9:50 am – 12:20 pm | Technical Sessions <ul style="list-style-type: none"> • Coordination Chemistry—I • Condensed Matter Physics—I | Pacific AB Coast Room |
| 10:20 am – 10:35 am | Morning Break | Pacific Foyer |
| 12:30 pm – 2:30 pm | Attendee Luncheon | Loma Vista Terrace |
| 2:30 pm – 3:45 pm | Plenary Session—VII | Pacific AB |
| 3:50 pm – 6:20 pm | Technical Sessions <ul style="list-style-type: none"> • Detection & Analysis—II • Surface Science and Corrosion—II | Pacific AB Coast Room |
| 4:20 pm – 4:35 pm | Afternoon Break | Pacific Foyer |

Friday, September 14

| | | |
|---------------------|---|--------------------------|
| 8:00 am – 10:30 pm | Registration | Pacific Foyer |
| 8:30 am – 9:45 am | Plenary Session—VIII | Pacific AB |
| 9:50 am – 12:30 pm | Technical Sessions <ul style="list-style-type: none"> • Coordination Chemistry—II • Condensed Matter Physics—II | Pacific AB Pacific CD |
| 10:20 am – 10:35 am | Morning Break | Pacific Foyer |
| 12:45 pm – 1:15 pm | Closing | Pacific AB |

General Information

MEETING INFORMATION

Plutonium Futures–The Science 2018 is a topical conference that provides an international forum for the presentation and discussion of current research on physical and chemical properties of plutonium and other actinide elements. This is the tenth conference in the series of acclaimed international conferences initiated by Los Alamos and Lawrence Livermore National Laboratories in 1997. The 2018 conference is co-sponsored by Los Alamos and Lawrence Livermore National Laboratories and the American Nuclear Society (ANS).

Plutonium Futures conferences provide an international forum for the discussion of current research on the physical and chemical properties of plutonium and other actinide elements. By bringing people of diverse disciplines together, the conference aims to enhance the dialogue among scientists and engineers on the fundamental properties of plutonium and other actinide elements, and their technological consequences.

REGISTRATION

Location: Pacific Foyer

Name badges must be worn during all technical sessions, and events. Certain events require a ticket, and may entail an additional cost.

REGISTRATION HOURS

| | |
|-------------------------|------------------|
| Sunday, September 9 | 5:00 - 7:00 pm |
| Monday, September 10 | 7:30 am-4:30 pm |
| Tuesday, September 11 | 8:00 am-4:30 pm |
| Wednesday, September 12 | 8:00 am-11:00 am |
| Thursday, September 13 | 8:00 am-4:30 pm |
| Friday, September 14 | 8:00 am-10:30 am |



#ANSMeeting

General Information

ANS CODE OF ETHICS

Preamble

Recognizing the profound importance of nuclear science and technology in affecting the quality of life throughout the world, members of the American Nuclear Society (ANS) are committed to the highest ethical and professional conduct.

Fundamental Principle

ANS members as professionals are dedicated to improving the understanding of nuclear science and technology, appropriate applications, and potential consequences of their use.

To that end, ANS members uphold and advance the integrity and honor of their professions by using their knowledge and skill for the enhancement of human welfare and the environment; being honest and impartial; serving with fidelity the public, their employers, and their clients; and striving to continuously improve the competence and prestige of their various professions.

ANS members shall subscribe to the following practices of professional conduct:

Principles of Professional Conduct

1. We hold paramount the safety, health, and welfare of the public and fellow workers, work to protect the environment, and strive to comply with the principles of sustainable development in the performance of our professional duties.
2. We will formally advise our employers, clients, or any appropriate authority and, if warranted, consider further disclosure, if and when we perceive that pursuit of our professional duties might have adverse consequences for the present or future public and fellow worker health and safety or the environment.
3. We act in accordance with all applicable laws and these Practices, lend support to others who strive to do likewise, and report violations to appropriate authorities.
4. We perform only those services that we are qualified by training or experience to perform, and provide full disclosure of our qualifications.
5. We present all data and claims, with their bases, truthfully, and are honest and truthful in all aspects of our professional activities. We issue public statements and make presentations on professional matters in an objective and truthful manner.
6. We continue our professional development and maintain an ethical commitment throughout our careers, encourage similar actions by our colleagues, and provide opportunities for the professional and ethical training of those persons under our supervision.
7. We act in a professional and ethical manner towards each employer or client and act as faithful agents or trustees, disclosing nothing of a proprietary nature concerning the business affairs or technical processes of any present or former client or employer without specific consent, unless necessary to abide by other provisions of this Code or applicable laws.
8. We disclose to affected parties, known or potential conflicts of interest or other circumstances, which might influence, or appear to influence, our judgment or impair the fairness or quality of our performance.
9. We treat all persons fairly.
10. We build our professional reputation on the merit of our services, do not compete unfairly with others, and avoid injuring others, their property, reputation, or employment.
11. We reject bribery and coercion in all their forms.
12. We accept responsibility for our actions; are open to and acknowledge criticism of our work; offer honest criticism of the work of others; properly credit the contributions of others; and do not accept credit for work not our own.

General Information

ABOUT ANS

Mission

ANS provides its members with opportunities for professional development. It also serves the nuclear community by creating a forum for sharing information and advancements in technology, and by engaging the public and policymakers through communication outreach.

Code of Ethics

Recognizing the profound importance of nuclear science and technology in affecting the quality of life throughout the world, members of the American Nuclear Society (ANS) are committed to the highest ethical and professional conduct.

ANS members as professionals are dedicated to improving the understanding of nuclear science and technology, appropriate applications, and potential consequences of their use.

To that end, ANS members uphold and advance the integrity and honor of their professions by using their knowledge and skill for the enhancement of human welfare and the environment; being honest and impartial; serving with fidelity the public, their employers, and their clients; and striving to continuously improve the competence and prestige of their various professions. The Code of Ethics can be found at www.ans.org/about/coe.

Statement on Diversity

The American Nuclear Society (ANS) is committed, in principle and in practice, to creating a diverse and welcoming environment for everyone interested in nuclear science and technology. Diversity means creating an environment – both in ANS and in the profession – in which all members are valued equitably for their skills and abilities and respected equally for their unique perspectives and experiences. Diverse backgrounds foster unique contributions and capabilities, and so creation of an inclusive Society ultimately leads to a more creative, effective, and technically respected Society.

ANS believes that everyone deserves opportunities for learning, networking, leadership, training, recognition, volunteering in Society activities, and all the other benefits that involvement in the Society brings, regardless of age, color, creed, disability, ethnicity, gender identity and expression, marital status, military service status, national origin, parental status, physical appearance, race, religion, sex, or sexual orientation. The selection of a member to serve in ANS's volunteer leadership structure shall be based solely on the member's ability, interest and commitment to serve. In particular, ANS encourages members at each level of the Society and in each Professional Division and Technical Group to make special efforts to recruit underrepresented minorities and women to ensure that they are adequately represented in the Society.

Respectful Behavior Policy (Abbreviated)

The open exchange of ideas, freedom of thought and expression, and productive scientific debate are central to the mission of the American Nuclear Society (ANS). These require an open and diverse environment that is built on dignity and mutual respect for all participants and ANS staff members, and is free of bias and intimidation.

ANS is dedicated to providing a safe, welcoming, and productive experience for everyone participating in Society events and other Society activities regardless of age, color, creed, disability, ethnicity, gender identity and expression, marital status, military service status, national origin, parental status, physical appearance, race, religion, sex, or sexual orientation. Creation of a safe and welcoming environment is a shared responsibility held by all participants. Therefore, ANS will not tolerate harassment of or by participants (including ANS volunteer leaders and staff members) in any form. Disciplinary action for participants found to have violated this principle may include reprimand, expulsion from an event or activity with or without a refund, temporary or permanent exclusion from all ANS events and activities, suspension or expulsion from volunteer leadership positions or groups, and/or suspension or expulsion from Society membership, as appropriate.

If you or someone else experiences harassment, regardless of how you otherwise choose to initially handle the situation, you are encouraged to report the situation to ANS. It is possible that the behavior you experienced is part of a larger pattern of repeated harassment. Please alert ANS to behavior you feel to be harassment regardless of the offender's identity or standing in the Society.

The designated contact for reports at the Plutonium Futures–The Science 2018 is ANS Executive Director Bob Fine. Bob can be reached at rfine@ans.org

The complete Respectful Behavior Policy can be found at www.ans.org/about/rbp. If you have questions about the policy, please contact ANS Executive Director Robert C. Fine at 708-579-8200 or rfine@ans.org.

Consent to Use Photographs and Videos: All attendance of registered participants, attendees, exhibitors, sponsors and guests ("you") at American Nuclear Society ("ANS") meetings, courses, conventions, conferences, or related activities ("Events") constitutes an agreement between you and ANS regarding the use and distribution of your image, including but not limited to your name, voice and likeness ("Image"). By attending the ANS Events, you acknowledge and agree that photographs, videotaping, live feed video and audio, and/or audio recordings may be taken of you and you grant ANS the right to use, in perpetuity, your Image in any electronic or print distribution, or by other means hereinafter created, both now and in the future, for media, art, entertainment, promotional, marketing, advertising, trade, internal use, educational purposes or any other lawful purpose.

Tutorial Session: Nuclear Fuel

Session Chair: Mitch Meyer (*INL*)

Location: Coast Room **Time:** 1:00-1:50 pm

This tutorial will provide an overview of the history, design, and behavior of solid fuel systems for advanced reactors, with examples focused on metal fuels. Nuclear fuel, the heart (coeur) of fission reactors, operates in an extreme environment. Fission energy is transferred to the fuel matrix primarily through electronic stopping of highly charged fission fragments, with masses between ~75 and 155 amu and energies of 70-100 MeV, causing both damage creation and annealing. Since each fission reaction produces two or more fission products, there is large burnup dependent change in fuel composition. A significant percentage (~25%) of the fission products are the insoluble gases xenon and krypton, which precipitate and are redissolved through fission dependent processes. The fissile phase interacts with the cladding both chemically and mechanically. These processes cause profound changes to microstructure and material properties throughout the life of the fuel.

Tutorial Session: Predictive Modeling of Actinide Chemistry

Session Chair: Ping Yang (*LANL*)

Location: Coast Room **Time:** 2:00-2:50 pm

Nuclear energy represents a critical tool to ensure sustainable energy supplies and curb greenhouse gases. However, the development of nuclear energy is still hampered by safety concerns associated with handling and processing of spent fuel and high-level waste. The complicated electronic structure of actinide complexes leads to their versatility of chemical bonding, reactivity, and spectral and magnetic properties. I will present recent progress in quantum chemical computations applied to heavy element molecular chemistry and surface chemistry providing a molecular-level picture, and demonstrate how the synergy between theory and experiments has greatly accelerated the understanding of f-orbital participation in chemical bonding across the actinide series.

Tutorial Session: Plutonium X-ray Diffraction: A Tutorial

Session Chair: Brian L. Scott (*LANL*)

Location: Coast Room **Time:** 3:00-3:50 pm

Single crystal and powder X-ray diffraction techniques helped define plutonium science during its genesis in the mid twentieth century. The structural information provided by these techniques, including the three-dimensional structures of molecules and associated bond distances and angles, have laid the foundation for understanding chemical reactivity and properties in plutonium. This presentation will give a brief overview of X-ray diffraction, and the types of information this technique provides. The early history of plutonium crystallography, and the role it played in the development of the actinide series will be addressed. An overview of important X-ray structures that helped advance plutonium science, including the discovery of new valence states, chemical bonds, periodic trends, covalency, and other important phenomena will be given. The presentation will close with potential pit-falls and corresponding solutions relevant to practicing plutonium crystallography, addressing absorption, heavy atoms and pseudo symmetry, hydrogen atom location and refinement, and safe containment of radioisotopes.

Tutorial Session: Photon and Electron Spectroscopy of Plutonium Materials

Session Chair: John Joyce (*LANL*)

Location: Coast Room **Time:** 4:00-4:50 pm

A broad overview of the most common electron and photon spectroscopies used for Pu research will be presented. We will also look briefly at Pu microscopy capabilities and how microscopy couples to provide complementary information to spectroscopy. There will be some discussion of the unique and sometimes limiting restrictions of conducting Pu research at user facilities. Advances in facility and spectroscopy capabilities will be highlighted with emphasis on recent capabilities enabling new science in Pu materials. We will cover a range of Pu materials from metals to oxides and a number of interesting compounds including PuCoGa₅, PuTe and PuSb₂. Among the photon and electron techniques covered will be EXAFS, XAS, XPS, UPS and SEM.

Technical
Sessions:
Monday
September 10

MONDAY, SEPTEMBER 10
PLENARY SPECIAL SESSIONS - 8:15 AM

Welcome Session

Session Chair: Franz Freibert (*LANL*)
Location: Pacific AB **Time:** 8:15-8:30 am

Speakers to be announced.

Plenary Session—I

Session Co-Chairs: Donald T. Reed (*LANL*), Scott K. McCall (*LLNL*)
Location: Pacific AB **Time:** 8:30-9:45 am

8:30 am: WIPP Operations and the Disposal of Plutonium, Todd A. Shrader (*DOE-CBFO*), invited

9:10 am: The Advantage of Fission Fragment Damage, M. K. Meyer (*INL*), S. Pimblott (*INL*), S. Zinkle, M. Lang (*Univ of Tennessee Knoxville*), invited

TECHNICAL SESSIONS - 9:50 AM

Metallurgy and Materials Science—I

Session Chair: Scott K. McCall (*LLNL*)
Location: Pacific AB **Time:** 9:50 am-12:20 pm

9:50 am: Plutonium Alloys and Delta Phase Stability: Solute Element Diffusion Plays an Important Part in the Martensitic Reversion Process and the Corrosion Phenomenon., B. Oudot, B. Ravat (*CEA*), A. Perron (*LLNL*), L. Jolly, C. Guéneau, F. Delaunay (*CEA*), invited

10:35 am: Effects of Irradiation-Induced Electronic Excitation on Simple and Complex Oxides, Cameron Tracy (*Stanford Univ*), invited

11:10 am: Atom Probe Tomography Analysis of Plutonium, Dallas Reilly, Edgar Buck, Amanda Casella, Jordan Corbey, Timothy Lach, Tenisha Meadows, Daniel Perea, Karl Pitts, Jon Schwantes (*PNNL*)

11:35 am: Dependence of Mechanical Properties of Actinides on Nano-Grain Structure and Alloying Addition Distribution, A. V. Karavaev, V. V. Dremov, F. A. Sapozhnikov, G. V. Ionov (*RFNC*)

12:00 pm: Perspectives in Using Raman Spectroscopy for Characterizing the Microstructure of Plutonium-Bearing Materials, Laetitia Medyk (*CEA*), Patrick Simon, Aurélien Canizares (*CEMHTI*), Dario Manara, Rudy J. M. Konings, Jean-Yves Colle (*EC-JRC*), Romain Vauchy, Christophe Valot (*CEA*), Gilles Montagnac (*CNRS*), Philippe M. Martin (*CEA*)

Environmental Chemistry—I

Session Chair: Donald T. Reed (*LANL*)
Location: Coast Room **Time:** 9:50 am-12:20 pm

9:50 am: Solubility, Hydrolysis and Solid Phase Formation of Hexavalent Pu in Alkaline NaCl Solutions, D. Fellhauer, J. Schepperle, T. Schramm, X. Gaona, D. Schild (*KIT*), O. Walter (*EC-JRC*), J. Rothe, M. Altmaier, H. Geckeis (*KIT*), invited

10:35 am: Pu Transport Mechanisms in the Environment: Field Evidence, Conceptual Models, Experimental Data, and Remediation Strategies, Mavrik Zavarin (*LLNL*), invited

11:10 am: Examination of the Effect of Alpha Radiolysis on Pu(IV) Sorption to Minerals Using Multiple Pu Isotopes, A. Schnurr (*KIT*), B. Powell (*Clemson Univ*)

11:35 am: Terrestrial Distribution of Pu in China: A Review of Published Data, Sixuan Li, Qiuju Guo (*Peking Univ*)

12:00 pm: Pu Redox Chemistry in the Presence of Iron-Bearing Minerals and EDTA, Nicole A. Moore (*Univ of Notre Dame*), Ezgi Yalcintas, Donald T. Reed (*LANL*), Amy E. Hixon (*Univ of Notre Dame*)

MONDAY, SEPTEMBER 10
TECHNICAL SESSIONS - 12:30 PM

Working Lunch/Poster Session—I

Location: Pacific CD **Time:** 12:30-2:30 pm

1. Laser Spectroscopy and Detection of Actinides/Lanthanides in Solutions, Igor Izosimov (*JINR*)
3. State and Composition of U Contained Within Fukushima Daiichi Derived Ejecta Particulate: Implications for Near-Surface Actinide Contamination and Species Mobility, P. G. Martin (*Univ of Bristol*), Y. Satou (*JAEA*), T. B. Scott (*Univ of Bristol*)
5. Screening of Serum Protein Expression Level in Plutonium Exposed Workers by Antibody Microarray Technique, Ying Liu, Mengxi Cheng, Xiaohui Ren (*CAEP*)
7. Application of Graphene Hydrogel-Based Materials for Radioactive Wastewater Treatment, Yan-Rong He, Zhao-Yi Tan, Dong Zhang (*CAEP*)
9. The BioGeoChemistry of Actinides Scientific Focus Area at Lawrence Livermore National Laboratory, M. Zavarin, A. B. Kersting, E. Balboni, J. Begg, Z. Dai, S. Hellebrandt, Y. Jiao, R. Kips, H. Mason, R. Maxwell, K. Morrison, C. Pan, C. Pilgrim, T. Parsons-Davis, S. Tumey (*LLNL*), B. Powell (*Clemson Univ*), W. Casey (*Univ of California, Davis*), C. Booth (*LBNL*), G. Law (*Univ of Manchester*), H. Geckeis, F. Quinto (*Univ of Karlsruhe*), D. Kaplan (*SRNL*)
11. Localized Shear and Compression-Test Diagrams of Uranium Alloy with Niobium and Molybdenum at Dynamic Loading, V. A. Pushkov, A. V. Yurlov, A. N. Tsibikov, T. G. Naidanova (*RFNC-VNIIEF*)
13. Low Temperature Radiation Damage Study of δ -Phase $^{239}\text{PuGa}$ Alloys by Neutron Diffraction, Alice I. Smith, Sven C. Vogel, Jianzhong Zhang, Scott Richmond, Michael Ramos, James Gallegos, Franz J. Freibert (*LANL*)
15. Non-Equilibrium Chemical Routes to Metal Reduction, Ryan Stillwell, Kiel Holliday, Yaakov Idell, Jason Jeffries (*LLNL*)
17. Development of Am-241 Based Materials Used as Radioisotope Heating Element for Space Application, J.-F. Vigier, D. Freis, R. J. M. Konings (*EC-JRC*)
19. Microstructure of δ -phase $^{239}\text{Pu-2at.}\% \text{Ga}$ Alloy at Low Temperature by Neutron Diffraction Peak Profile Analysis, Alice I. Smith, Jianzhong Zhang, Bjorn Clausen, S. C. Vogel, Donald W. Brown, Franz F. Freibert (*LANL*)
21. On Materials Damage at the End of the α -Particle Path, B. A. Nadykto, S. S. Sokolov, A. I. Panov, A. V. Samodolov (*RFNC-VNIIEF*)
23. Out with the Old and in with the New: Plutonium Materials Research Enhancements at Los Alamos National Laboratory, Jeremy N. Mitchell, Terry G. Holesinger, Matthew M. Schneider, Paul H. Tobash (*LANL*)
25. Understanding the Atomistic to Mesoscopic Processes in Uranium Hydride Nucleation and Growth, Terry G. Holesinger, Edward F. Holby, Roland K. Schulze, Matthew T. Janish, Matthew M. Schneider, Eric L. Tegtmeier, Andrew W. Richards (*LANL*)
27. Observations and Characterization of an Aged Pu-1.0 wt.% Ga Alloy, D. W. Wheeler, S. M. Ennaceur, M. B. Matthews, P. Roussel (*AWE*)
29. Feasibility Study of Separation of Plutonium from Metallographic Epoxy Mounts Using a Cremated Remains Processor, Jerzy Kulis (*LANL*)
31. Study on the Leaching of Actinides from Nuclear Fuel Debris, Akira Kirishima, Daisuke Akiyama (*Tohoku Univ*), Takayuki Sasaki (*Kyoto Univ*), Nobuaki Sato (*Tohoku Univ*)
33. The Selectively Separation of Cerium(III) by Sodium Bismuthate Nano-Sheets, Ning Wang, Chu-Ting Yang, Sheng Hu (*CAEP*)
35. The Sellafield Plutonium Storage Can Surveillance Programme: Characterization of PuO_2 After Extended Storage, M. Carrott, H. Colledge, J. Dodds, M. Farrer, C. Gregson, J. Holt, C. Mason, Tim Tinsley, M. Sarsfield (*NNL*), H. E. Sims, R. J. Taylor, L. Walton, S. Woodall, D. Woodhead (*NNL*), J. Hobbs, H. Steele (*Sellafield Ltd*)
37. Electrochemical Behavior of Lns on Active Electrode and Thermodynamic Date of Lns Intermetallic Compounds in LiCl-KCl Molten Salts, Tao Jiang, Ning Wang (*CAEP*)
39. GNEP-Sponsored Feasibility Studies of MOX Fuel Cycles in American BWRs and PWRs, Thongchai Patchana, Craig Hove, Thomas Bajat (*Framatome*), Dieter Bender (*retired*)
41. Thermal Stability and Crystal Structure of Uranium Nitride, Xiaofang Wang, Zhong Long, Yin Hu, Ke-zhao Liu (*CAEP*)
43. Structural and Electrochemical Investigations of Trivalent and Tetravalent Metal-Doped UO_2 , Sang Ho Lim (*KAERI/UST*), Jeongmook Lee, Jandee Kim, Young-Sang Youn, Jong-Yun Kim (*KAERI*)
45. Stable-Isotope Fractionation of Nitrogen by Uranium in Nitric Acid, Jacquelyn M. Dorhout, Marianne P. Wilkerson, Samuel M. Clegg (*LANL*)

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MONDAY, SEPTEMBER 10
TECHNICAL SESSIONS - 12:30 PM

Working Lunch/Poster Session—I Continued

Location: Pacific CD **Time:** 12:30-2:30 pm

Technical
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47. New Perspective on the Civil Utilization of Depleted Uranium: Superior Dosimeters and Scintillators, Shuao Wang (*Soochow Univ*)
49. Radiolytic Recombination of H₂, O₂ and N₂ over PuO₂ and Ceramic Oxide Surrogates, Darryl Messer, Luke Jones (*Dalton Cumbrian Facility/Univ of Manchester*), Robin Orr (*NNL*), Sven Koehler (*Dalton Cumbrian Facility/Univ of Manchester/Manchester Metropolitan Univ*), Simon Pimblott (*Dalton Cumbrian Facility/Univ of Manchester/NNL*)
51. Possibility of Actinide Protection with Metal Coatings, T. Kazakovskaya, E. Goryachev S. Bezrukov (*RFNC-VNIIEF*)
53. The Temperature-Dependent Transition From Parabolic to Linear Oxide Growth on Uranium Determined by Grazing Angle X-Ray Diffraction, C. K. Saw, Y. Idell, W. J. Siekhaus (*LLNL*)
55. AES Investigation of Plutonium Oxidation at High Relative Humidity, S. B. Donald, A. J. Nelson, W. McLean (*LLNL*)
57. Spectroscopic Ellipsometry Investigation of Time Dependent Oxidation Rates of Uranium in Pure Oxygen, Y. Idell, W. Siekhaus, K. Blobaum, W. McLean II (*LLNL*)
59. A Study on the Microstructure-Dependent Hydriding Characteristics of Uranium with Different Cooling Rates, Hefei Ji, Peng Shi, Xiaolin Wang (*CAEP*)
61. Modelling the Surface Chemistry of Plutonium Oxide, Jonathan Collard, Nikolas Kaltsoyannis (*Univ of Manchester*)
63. Effects of Sputtering on Pu Surface by STM/STS/AES, Miles F. Beaux, Neliza León Brito, Igor O. Usov (*LANL*)
65. Microscopic Characterization of Teardrop Specimens Exposed to Plutonium Bearing Materials, Juan G. Duque, Josh Narlesky, Mary Ann Stroud, Daniel Rios, Elizabeth J. Kelly, Stephen A. Joyce, John M. Berg, D. Kirk Veirs, Laura A. Worl (*LANL*)
67. The First Principles Study of Interaction Properties Between Reactive Molecules and Pu-Dioxide Surface, Bo Sun, Hai Feng Liu, Hai-Feng Song (*IAPCM*)
69. Valence Configurations and 5f Electron Localization in Pu Metal, J. J. Joyce, K. S. Graham, D. P. Moore, P. H. Tobash, J. N. Mitchell, S. Richmond (*LANL*), G.H. Lander (*EC JRC*)
71. Direct Measurement of the Localized-Itinerant Transition, Hybridization and Antiferromagnetic Transition of 5f Electrons, S. Y. Tan, D. H. Xie (*CAEP*), M. L. Li (*Inst of Applied Physics and Computational Mathematics*), W. Zhang, L. Huang (*CAEP*), P. Zhang (*Inst of Applied Physics and Computational Mathematics*), X. C. Lai (*CAEP*)
73. On Pressure and Temperature-Driven Optical Atomic Oscillation in Solid State Uranium and Plutonium, B. A. Nadykto (*RFNC-VNIIEF*)
75. Pressure-Driven Insulator-Metal Transition in Cubic Phase UO₂, Li Huang (*CAEP*), Yilin Wang (*BNL*), Philipp Werner (*Univ of Firbourg*)
77. Uranium Nitride U₂N₃ as a Novel Thermoelectric Material, Jing Liu, Zhong Long, Yin Hu, Kezhao Liu (*CAEP*)
79. Lanthanide and Actinide Imidophosphorane Chemistry: Molecular Models of Mixed-Valent f-Element Materials, Henry S. La Pierre, Natalie T. Rice, Thaige P. Gomba, Dominic P. Russo (*Georgia Tech*), Joshua Telser (*Roosevelt Univ*), Lukas Palatinus (*Czech Academy of Sciences*), John Bacsca (*Georgia Tech*)
81. Coordination Structure of Uranium Complexes in Disordered Systems Using X-Ray Absorption Fine Structure Spectroscopy, Linjuan Zhang, Jing Zhou, Hongliang Bao, Jian Lin, Jian-Qiang Wang (*CAS*)
83. Synthesis and Characterization of Tetravalent Actinide Complexes with Nitrogen Donor Ligands, Sebastian Schöene, Roger Kloditz, Juliane Mäerz, Peter Kaden, Michael Patzschke (*HZDR*), Peter W. Roesky (*KIT*), Thorsten Stumpf, Atsushi Ikeda-Ohno (*HZDR*)
85. Characterization and Kinetic Study of Plutonium III and IV Oxalates, Christopher R. Armstrong (*PNNL*)
87. The Synthesis and Characterization of Anhydrous Actinide Chlorides and Organic Cations, Jared Stritzinger, George Goff (*LANL*)
89. GD-MS Analysis of Al-Ga and Sn-Ga Alloys as Simulants for Actinide Materials. Kelly Pilcher (*AWE*)
90. Observations of Gas Generation in High Purity Plutonium Oxides, M. A. Stroud, J. E. Narlesky, D.K. Veirs, J.M. Berg, K. V. Wilson, E. L. Romero, D. Rios, J. Kulis, L. A. Worl (*Los Alamos National Laboratory*)

MONDAY, SEPTEMBER 10

PLENARY SPECIAL SESSIONS - 2:30 PM

Plenary Session—II

Session Co-Chairs: Krzysztof Gofryk (*INL*), John K. Gibson (*LBNL*)

Location: Pacific AB **Time:** 2:30-3:45 pm

2:30 pm: Chemical Separations for the Nuclear Fuel Cycle, T. A. Todd (*INL*), invited

3:05 pm: The Relevance of Solid Solution—Aqueous Solution Systems to the Safety Case for Deep Geological Disposal of Nuclear Wastes, D. Bosbach, F. Brandt, M. Klinkenberg, V. Vinograd, J. Weber, G. Deissmann (*FzJ*), invited

TECHNICAL SESSIONS - 3:50 PM

Nuclear Fuel Cycle—I

Session Chair: Krzysztof Gofryk (*INL*)

Location: Pacific AB **Time:** 3:50-6:20 pm

3:50 pm: Separation of Neptunium from Actinides in Acidic Feeds Using Different Extractants, P. K. Mohapatra (*BARC*), invited

4:35 pm: Closing the Nuclear Fuel Cycle, Mark A. Williamson (*ANL*), invited

5:10 pm: Radiolytic Gas Generation From Adsorbed Water on the Surface of PuO₂, Luke Jones (*Univ of Manchester*), Robin Orr, Howard Sims (*NNL*), Simon Pimblott (*INL*)

5:35 pm: Development of Process Monitoring Tools for the Uranium-Plutonium Separation and Purification from Spent Nuclear Fuel by Liquid-Liquid Extraction, Sylvain Costenoble, Sylvain Broussard, Johann Sinot, Vincent Vanel, Christian Sorel, Marc Montuir, Manuel Miguirditchian, Stéphane Grandjean (*CEA*)

6:00 pm: Plutonium and Uranium Coordination in the SiC Layer of Irradiated TRISO Fuel, Rachel Seibert (*IIT*), Kurt Terrani (*ORNL*), Jeff Terry (*IIT*)

Solution and Gas Phase Chemistry—I

Session Chair: John K. Gibson (*LBNL*)

Location: Coast Room **Time:** 3:50-5:55 pm

3:50 pm: Redox Behavior of Pu(III/IV) in Dilute to Concentrated Saline Systems, E. Yalcintas (*LANL*), A. N. Gaiser, T. Albrecht-Schmitt (Florida State Univ), Donald T. Reed (*LANL*), invited

4:35 pm: Plutonium Environmental Chemistry: Mechanisms for the Surface-Mediated Reduction of Pu(V/VI), Amy E. Hixon (*Univ of Notre Dame*), invited

5:10 pm: Ln^{IV}/An^{IV}-C Bonding in Biscarbene Complexes: A Relativistic Theoretical Study, Qun-Yan Wu, Zhi-Fang Chai (*CAS*), John K. Gibson (*LBNL*), Wei-Qun Shi (*CAS*)

5:35 pm: Speciation of Plutonium and Uranium in Natural Seawater and in P. Lividus Sea Urchin, M. R. Beccia, B. Reeves, M. Maloubier (Université Côte d'Azur), T. Dumas, P. Moisy (*CEA, DEN*), P. L. Solari (*Synchrotron SOLEIL*), M. Monfort, C. Moulin (CEA, DAM, DIF), D. K. Shuh (*LBNL*), C. Den Auwer (Université Côte d'Azur)

6:00 pm: New Chelating Agents for Plutonium Pulmonary Decorporation, L. Léost, L. Vincent, N. Sbirrazzuoli (*Insti de Chimie de Nice*), J. Roques (Univ Paris-Sud), A. Van Der Meeren (*CEA*), C. Hennig, A. Rossberg (*HZDR*), C. Den Auwer, C. Di Giorgio (*Inst de Chimie de Nice*)

Technical
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TUESDAY, SEPTEMBER 11

PLENARY SPECIAL SESSION - 8:30 AM

Plenary Session—III

Session Co-Chairs: Franz Freibert (*LANL*), Mavrik Zavarin (*LLNL*)

Location: Pacific AB **Time:** 8:30-9:45 am

8:30 am: Plutonium Nanoparticles—Formation and Properties, Stepan Kalmykov (*Moscow State Univ*)

9:10 am: Metallurgy of PuGa Alloys: The Latest Insights into δ -Phase Stability and Oxidation, B. Ravat, B. Oudot, L. Jolly, F. Lalire, A. Perron, F. Delaunay (*CEA*), invited

TECHNICAL SESSIONS - 9:50 AM

Metallurgy and Materials Science—II

Session Chair: Franz Freibert (*LANL*)

Location: Pacific AB **Time:** 9:50 am-12:20 pm

9:50 am: In Stream Monitoring of Off-Gasses from Plutonium Fluorination, Amanda Casella (*PNNL*), Job Bello (*Spectra Solutions*), Sam Bryan, Richard Clark (*PNNL*), Calvin Delegard (*TradeWinds*), Jennifer Carter, Forrest Heller, Amanda Lines, Bruce McNamara (*PNNL*), invited

10:35 am: Progress on the Thermophysical Properties of Some Plutonium Alloys and Compounds, Paul H. Tobash, Eric D. Bauer, Jeremy N. Mitchell, Daniel S. Schwartz, Franz J. Freibert, Scott Richmond (*LANL*), David W. Wheeler (*AWE*), Thomas E. Albrecht-Schmitt (*Florida State Univ*)

11:10 am: EXAFS Studies of Radiation Damage and Annealing in Pu, Daniel T. Olive, Alison L. Pugmire, Franz J. Freibert (*LANL*), Corwin H. Booth (*LBNL*)

11:35 am: Effect of Grain Size on Gallium Precipitation in Gallium-Stabilized δ -Plutonium: A Numerical Study, Piheng Chen, Xinchun Lai (*CAEP*)

12:00 pm: A New Paradigm in Actinide Research: Nuclear Materials Science at the Micron-Scale, Dallas Reilly, Reid Peterson, Dallas Reilly, Richard Clark, Daniel Perea, Richard Buckner, Edgar Buck, John Cliff, Michelle Conroy, Timothy Lach, Paul MacFarlan (*PNNL*), J. David Robertson (*Univ of Missouri, Columbia*), Camille Palmer, Todd Palmer (*Oregon State Univ*), Sue Clark (*PNNL*)

Environmental Chemistry—II

Session Chair: Mavrik Zavarin (*LLNL*)

Location: Coast Room **Time:** 9:50 am-12:20 pm

9:50 am: Plutonium Aerosol Informatics: Understanding, Communicating, and Managing Radiation Safety in Plutonium Science, Mark D. Hoover (*National Inst Occupational Safety & Health*), Leigh J. Cash (*LANL*)

10:35 am: Pu Mobility in the Vadose Zone: Influence of Organic Matter, Redox Cycling, and PuO₂ Dissolution, Brian A. Powell (*Clemson Univ/SRNL*), Nathan Conroy, Melody Maloubier, Kathryn Peruski (*Clemson Univ*), Hilary Emerson (*Florida International Univ*), Daniel I. Kaplan (*SRNL*), Mavrik Zavarin, Annie Kersting (*LLNL*)

11:10 am: Probing Plutonium Dioxide Nanoparticles with Synchrotron Methods, Evgeny Gerber (*ESRF/HZDR/Lomonosov Moscow State Univ*), Anna Romanchuk (*Moscow State Univ*), Ivan Pidchenko, Christoph Hennig (*ESRF/HZDR*), Alexander Trigub (*Kurchatov Inst*), Stephan Weiss (*HZDR*), Andreas C. Scheinost (*ESRF/HZDR*), Stepan Kalmykov (*Moscow State Univ*), Kristina O. Kvashnina (*ESRF/HZDR*)

11:35 am: Innovative Nuclear CRMs for EURATOM Safeguards and Industry, Buda Razvan, Yetunde Aregbe, N. Banik, J. Bauwens, R. Bujak, R. Carlos Marquez, A. M. Sánchez Hernández, K. Tóth, Evelyn Zuleger (*EC-JRC*)

12:00 pm: A Comparison of Plutonium Abundance in Soil from Sites in the United Kingdom Measured with High Efficiency, High-Resolution γ -Ray Spectroscopy, Neutron Assay and Accelerator Mass Spectrometry, C. Tighe (*Lancaster Univ*), M. Cristl (*ETH*), C. Degueudre (*Lancaster Univ*), J. Andrew (*Downreay Site Restoration Ltd*), M. J. Joyce (*Lancaster Univ*)

TUESDAY, SEPTEMBER 11

TECHNICAL SESSIONS - 12:30 PM

Working Lunch/Poster Session—II

Location: Pacific CD **Time:** 12:30-2:30 pm

2. Uranium(VI) Complexation with Aqueous Silicates in the Acidic to Alkaline pH-Range, Henry Loesch (*HZDR*), Jan Tits (*PSI*), Nina Huittinen (*HZDR*)
4. Development and Validation of a Surrogate for the Plutonium-Gallium System, Duncan R. Brocklehurst, Rachel N. Gaudet, John D. Auxier II, Howard L. Hall (*Univ of Tennessee Knoxville*)
6. Trivalent Impurities Promote Oxygen Vacancy Segregation and Increase Oxygen Transport at Actinide Oxide Grain Boundaries, Adam R. Symington, James Grant (*Univ of Bath*), Marco Molinari (*Univ of Huddersfield*), Stephen C. Parker (*Univ of Bath*)
8. Aliovalent Actinide Incorporation into Zirconium(IV) oxide—Spectroscopic Investigations of Defect Fluorite Structures, Manuel Eibl (*HZDR*), Samuel Shaw, Katherine Morris (*Univ of Manchester*), Thorsten Stumpf, Nina Huittinen (*HZDR*)
10. What Metallurgical Phenomena Can We Deduce from High-Precision Bulk Density Measurements?, Alexandria N. Marchi, Ryan M. Holguin, Franz J. Freibert (*LANL*)
12. L-Base Lathe at Los Alamos National Laboratory, Wendel Brown (*LANL*)
14. The PreCalc Project: Development of a Dynamic Model for Plutonium Processing, Lindsay E. Roy, Christopher South, Si Young Lee, Chaitanya Deo (*SRNL*)
16. Characterization of Damage in Small Plutonium Samples, Meghan J. Gibbs, Jeremy N. Mitchell, Miranda L. Williams, Tomas A. Martinez, Carlos D. Archuleta (*LANL*)
18. Study of Young's Modulus of Alpha and Delta Plutonium, Clarissa A. Yablinsky, Meghan J. Gibbs, Taylor R. Jacobs, Miranda L. Williams, Carlos D. Archuleta, Tomas A. Martinez, Tarik A. Saleh (*LANL*)
20. Advanced X-Ray Diffraction Line Profile Analysis Methods for Understanding the Microstructure Properties Distributions of Plutonium Oxide as a Function of Processing Conditions, Lucas E. Sweet, Jordan F. Corbey (*PNNL*), Matteo Leoni (*Univ of Trento*)
22. Towards the Electrolytic Oxide Reduction (*EOR*) of PuO_2 : Mitigating Side Reactions in the Cerium System, Marisa J. Monreal, J. Matt Jackson, David A. T. Rodriguez, Kirk R. Weisbrod (*LANL*), Michael F. Simpson (*Univ of Utah*)
24. Measurement of Length Changes in Naturally Aging Plutonium, S. K. McCall, K. E. Lema, P. B. Mirkarimi, D. Ruddle, J. R. Jeffries, B. W. Chung (*LLNL*)
26. Fuel Pellet Swelling and Fracture in Response to Helium Release in ^{238}Pu Fuel Pellets, Roberta N. Mulford (*LANL*)
28. Phase Identification and Thermophysical Properties Evaluation of As-Cast and Annealed Pu-Zr Alloys, Cynthia Papesch (*INL*), Assel Aitkaliyeva (*INL, Univ of Florida*)
30. Microfluidic Devices Applied to Uranium and Plutonium Extraction, Janelle Droessler, Eric Auchter, Kevin Boland, Rebecca Chamberlin, Casey Finstad, George Goff, Quintessa Guengerich, David Kimball, Justin Marquez, Quinn McCulloch, John Rowley, Bradley Skidmore, Kirk Weisbrod, Stephen Yarbrow (*LANL*)
32. A Workshop on the History of Plutonium Processing at Hanford Washington as the Foundation for Modern-Day Plutonium Process Science, F. N. Smith, D. E. Meier, M. K. Edwards, C. R. Armstrong, J. A. Katalenich, A. J. Casella, D. D. Reilly, L. Sweet, J. M. Tingey, G. J. Lumetta, W. K. Pitts (*PNNL*), C. H. Delegard (*Tradewind LLC*), D. S. Barnett, M. D. Engelmann (*PNNL*)
34. Plutonium Rock-Like Oxide Fuel (*ROXf*) System, Their Once-Through Burning and Usage., Ashraf Elsayed Mohamed Mohamed (*Brno Univ*)
36. An Overview Plutonium Work at NSUF Facilities at Los Alamos National Laboratory, Tarik A. Saleh, Thomas J. Venhaus, Adrian S. Losko, Sven C. Vogel (*LANL*)
38. Automation Separation and LSC Determination of Plutonium, Qinghua Xu, Zhonghua Xiong, Binyuan Xia, Hailing Zhang, Huanhuan Ding, Weidong Liu (*CAEP*)
40. Computational Modeling of Pu (III) Oxalate Precipitation in Acid Solution, Jacob L. Bair, Kerry E. Garrett, David G. Abrecht (*PNNL*)
42. Pu Surface Science Lab Capabilities at Los Alamos National Laboratory, Kevin S. Graham, Thomas Venhaus, John J. Joyce, Daniel Olive, Sarah Hernandez (*LANL*)
44. The Experimental Research on Oxidation Kinetics of Uranium Surface Treated by Laser Nitriding, Yin Hu, Haibo Li, Jianwei Qin, Xiaofang Wang, Yongbin Zhang, Yanzhi Zhang, Kezhao Liu (*Science and Technology on Surface Physics and Chemistry Lab*)
46. Recent Progress of Uranium Surface Nitridation, Ke-zhao Liu, Xiaofang Wang, Yin Hu, Zhong Long, Lizhu Luo (*CAEP*)

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TUESDAY, SEPTEMBER 11

TECHNICAL SESSIONS - 12:30 PM

Working Lunch/Poster Session—II Continued

Location: Pacific CD **Time:** 12:30-2:30 pm

Technical Sessions: Tuesday September 11

48. Corrosion of Uranium in Liquid Water Under Contained Conditions with a Headspace Deuterium Overpressure, A. Banos, T. B. Scott (*Univ of Bristol*)
50. Comparison of Oxidation Behaviors of UN_{0.68} and UN_{1.66} by XPS, Lizhu Luo, Yin Hu, Kezhao Liu, Xiaolin Wang (*CAEP*)
52. Molecular Coordination on Erbium and Plutonium Surfaces: An Infrared Spectroscopy Study, J. D. Anderson, K. Campbell, T. J. Venhaus (*LANL*)
54. Sorption of Trivalent f-Elements by Biomaterials of Marine Origin —A TRLFS and Solid-State NMR Study, Kaitlin Kim Karlotta Kammerlander (*Technische Univ Dresden*), Nina Huittinen (*HZDR*), Silvia Paasch (*Technische Univ Dresden*), Thorsten Stumpf (*HZDR*), Eike Brunner (*Technische Univ Dresden*)
56. ToF-SIMS Analysis of Hydrogen Within the Native Plutonium Oxide Layer, Thomas J. Venhaus, Sarah C. Hernandez (*LANL*), Paul Roussel (*AWE*)
58. Exploring Mesoscale Plutonium Surface Features via Atomic Force Microscopy, Miguel A. Santiago Córdoba, Neliza León-Brito, Reuben J. Peterson, Miles F. Beaux II, Igor O. Usov (*LANL*)
60. Effects of Oxygen Gas Exposure on the Electrical Properties and Electronic Structure of a 7 Atomic % Ga Stabilized δ -Pu Sample Surface, Neliza León-Brito, Miles F. Beaux II, Igor O. Usov (*LANL*)
62. Computational Tools for Uranium Compounds, Andrew Miskowiec, Ashley E. Shields, Jennifer L. Niedziela, Marie C. Kirkegaard (*ORNL*)
64. First Principles Investigation of the Electronic and Magnetic Structure of Pu₆Fe, Sarah C. Hernandez, John M. Wills (*LANL*)
66. Strong Anharmonicity in Uranium: Deeper Understanding Through Principal Vibrational Mode Analysis, Sven P. Rudin (*LANL*)
68. Tuning f-Electron States in USb₂ via Extreme Conditions, N. P. Butch (*NIST/Univ of Maryland*), R. L. Stillwell (*LLNL*), I-L. Liu (*NIST/Univ of Maryland*), S. T. Weir (*LLNL*), Y. K. Vohra (*Univ of Alabama at Birmingham*), N. Harrison, M. Jaime (*LANL*), J. R. Jeffries (*LLNL*)
70. Synthesis of Electrically Active Switched Ion Exchange Electrode for the Removal of Cesium Ion, A. F. Tawfic, Mohy M. Sabry, M. Yassin Mohsen (*Military Technical College*)
72. Covalency in An(III/IV) (*An=Pu, Am*) Hexachlorides, Jing Su, Stosh A. Kozimor, Enrique R. Batista, Ping Yang (*LANL*)
74. Observation of Intense X-Ray Scintillation in a Uranyl Organic Framework, Yaxing Wang (*Soochow Univ/Sichuan Univ*), Xuemiao Yin (*Soochow Univ*), Ning Liu (*Sichuan Univ*), Zhifang Chai, Chuao Wang (*Soochow Univ*)
76. Probing Uranium Complexation with Bio-Inspired Octadenate Hydroxypyridinonate (*HOPO*) and Catecholamide (*CAM*) Chelators, Korey P. Carter, Gauthier J.-P. Deblonde, Corwin H. Booth (*LBNL*), Rebecca J. Abergel (*LBNL/Univ of California, Berkeley*)
78. Probing the Influence of Acidity and Temperature to Th(IV) on Hydrolysis, Nucleation, and Structural Topology, Jian Lin, Jian-Qiang Wang (*CAS*)
80. Radiation Resistant Covalent Organic Frameworks for Actinide Sequestration: A Breakthrough Under Highly Acidic Conditions, Jipan Yu, Liyong Yuan, Shuai Wang, Jianhui Lan, Zhifang Chai, (*CAS*), John K. Gibson (*LBNL*), Weiqun Shi (*CAS*)
82. Theoretical Insights on the Actinide Endohedral Borospherenes, Cong-Zhi Wang, Tao Bo, Jian-Hui Lan, Qun-Yan Wu, Zhi-Fang Chai, Wei-Qun Shi (*CAS*)
84. Alpha Energy Spectrum From a Plutonium Metal Surface, Yongqiang Wang, Daniel Olive, Scott Richmond (*LANL*)
86. Desorption of Plutonium from Altered Nuclear Melt Glass Colloids, Claudia Joseph, Enrica Balboni, (*LLNL*), Teresa Baumer (*Univ of Notre Dame*), Kerri Treinen, Anne B. Kersting, Mavrik Zavarin (*LLNL*)
88. Regulatory Perspectives on Plutonium Oxidation States at the Waste Isolation Pilot Plant, Carlsbad, New Mexico, USA, E. F. U. Santillan (*EPA*)
90. Age Dating of Bulk Plutonium Materials. Kelly Pilcher (*AWE*)

TUESDAY, SEPTEMBER 11

PLENARY SPECIAL SESSIONS - 2:30 PM

Plenary Session—IV

Session Co-Chairs: P. K. Mohapatra (*BARC*), Dirk Bosbach (*FzK*)

Location: Pacific AB **Time:** 2:30-3:45 pm

2:30 pm: Waste Forms for the Nuclear Fuel Cycle, William J. Weber (*Univ of Tennessee*), Rodney C. Ewing (*Stanford Univ*), E. R. Vance, Daniel Gregg (*ANSTO*), Sylvain Peugot (*CEA*), Thierry Wiss (*EC-JRC*), invited

3:10 pm: Exploring and Expanding High Oxidation States of Actinides, John K. Gibson (*LBNL*), Monica Vasiliu (*Univ of Alabama*), Wibe A. de Jong (*LBNL*), Kirk A. Peterson (*Washington State Univ*), Phuong D. Dau, Yu Gong (*LBNL*), David A. Dixon (*Univ of Alabama*)

TECHNICAL SESSIONS - 3:50 PM

Nuclear Fuel Cycle—II

Session Chair: Prasanta Kumar Mohapatra (*BARC*)

Location: Pacific AB **Time:** 3:50-6:20 pm

3:50 pm: Pu Dissolution Yield of a Spent SFR MOX Fuel as a Function of Axial Position in the Reactor (PHENIX NESTOR-3 Tests), Nathalie Reynier-Tronche, Emilie Buravand, Eric Esbelin, Laurent Huyghe, Stephane Grandjean, Benedicte Arab-Chapelet (*CEA*)

4:35 pm: Microstructural Characterization of Pu-Based Fuels, Assel Aitkaliyeva (*Univ of Florida*), invited

5:10 pm: Recent Research Activities on the Separation and Coordination Chemistry of Transuranium Elements at INET, Chao Xu, Jing Chen (*Tsinghua Univ*)

5:35 pm: Cesium Separation from Aqueous Streams by Calix-Mono-Crown-Arene, Marie Simonnet, Yuji Miyazaki, Shinichi Suzuki, Tohru Kobayashi, Hideaki Shiwaku, Resuke Doi, Tsuyoshi Yaita (*JAEA*)

6:00 pm: A New Chemical Route of Nuclear Fuel (U, Pu) $O_{2.15}$ by Advanced Thermal Denitration in the Presence of Organic Additive, Martin Leblanc (*CEA/ICSM*), Gilles Leturcq, Eléonore Welcomme (*CEA*), Xavier Deschanel (*ICSM*), et Thibaud Delahaye (*CEA*)

Solution and Gas Phase Chemistry—II

Session Chair: Dirk Bosbach (*FzJ*)

Location: Coast Room **Time:** 3:50-6:20 pm

3:50 pm: Preparation of a New Water Soluble Polynuclear Peroxide Complex of Pu(IV), Matthieu Virot, Elodie Dalodière, Thomas Dumas (*CEA*), Oliver Dieste Blanco, Thierry Wiss (*EC-JRC*), Philippe Moisy, Sergey I. Nikitenko (*CEA*)

4:35 pm: Actinide-Iron Multiple Bonds in $AnFe(CO)_3$ and $O AnFe(CO)_3$ ($An = Th, Pa, U, Np, Pu$) Complexes, Jia-Qi Wang, Han-Shi Hu, Minfeng Zhou, Jun Li (*Tsinghua Univ*), invited

5:10 pm: A New Look at the Chelation of Transplutonium Elements Through EXAFS Spectroscopy, Gauthier J-P. Deblonde, Corwin H. Booth (*LBNL*), Morgan P. Kelley, Jing Su, Enrique R. Batista, Ping Yang (*LANL*), Rebecca J. Abergel (*LBNL/ Univ of California, Berkeley*)

5:35 pm: Characterization of Isostructural An(IV) Complexes with Hetero-Donor Imine Ligands, Thomas Radoske (*HZDR*), Olaf Walter (*EC-JRC*), Juliane März, Peter Kaden, Roger Kloditz, Michael Patzschke, Thorsten Stumpf, Atsushi Ikeda-Ohno (*HZDR*)

6:00 pm: Spectroscopic and Theoretical Studies on the Extracted Complexes of Am^{3+}/Cm^{3+} by Purified Cyanex301: Multi-Species and Remarkable An-S Covalency, Ning Pu, Xihong He (*Tsinghua Univ*), Linfeng Rao (*LBNL*), Chao Xu, Jing Chen (*Tsinghua Univ*)

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WEDNESDAY, SEPTEMBER 12

PLENARY SPECIAL SESSION - 8:30 AM

Plenary Session—V

Session Co-Chairs: David E. Hobart (*Florida State Univ*), David Geeson (*AWE*)

Location: Pacific AB **Time:** 8:30-9:45 am

8:30 am: Plutonium Analysis for Nuclear Safeguards and Forensics, Klaus Luetzenkirchen (*Inst for Transuranium Elements*)

9:10 am: Investigations into Plutonium Oxidation, K. Graham, S. Hernandez, J. Joyce (*LANL*), W. Lake (*AWE*), A. Nelson (*LLNL*), Paul Rousset (*AWE*). T. Venhaus (*LANL*), invited

TECHNICAL SESSIONS - 9:50 AM

Detection and Analysis—I

Session Chair: David E. Hobart (*Florida State Univ*)

Location: Pacific AB **Time:** 9:50 am-12:20 pm

9:50 am: Plutonium and Uranium from Weapons Testing: Characterizing the Long-Lived Source Term in Fallout, K. S. Holliday (*LLNL*), J. M. Dierken, M. L. Monroe (*AFIT*), M. A. Fitzgerald (*LLNL/UNLV*), N. E. Marks, R. C. Gostic, K. B. Knight (*LLNL*), J. L. Pacold, W. W. Lukens, C. H. Booth, D. K. Shuh (*LBNL*), G. R. Eppich (*LLNL*), K. R. Czerwinski (*UNLV*), I. D. Hutcheon (*LLNL*), J. W. McClory (*AFIT*), invited

10:35 am: Ultra-Trace Analysis with AMS of Actinides from Global Fallout and *In-Situ* Tracer Tests, Francesca Quinto, Horst Geckeisz (*KIT*), Karin Hain (*VERA Lab*), Urs Mäder (*Univ of Bern*), Markus Plaschke (*KIT*), Thorsten Schäfer (*KIT/FSU*). Peter Steier (*VERA Lab*), invited

11:10 am: Analysis of Plutonium Containing Particles by Resonant Laser-SNMS, Hauke Bosco, Manuel Raiwa, Martin Weiss (*Leibniz Univ Hannover*), Klaus Wendt (*Johannes Gutenberg-Univ Mainz*), Clemens Walther (*Leibniz Univ Hannover*)

11:35 am: Plutonium Mass Content Accurate Determination by Controlled Potential Coulometry at CETAMA, Sébastien Picart, Ygor Davrain, Marielle Crozet, Danièle Roudil (*CEA*)

12:00 pm: Research Progress of Plutonium Measurement in the Environment, Wen Sheng Ren, Wenjing Dong, Dong Zhao, Hexiang Huang, Wei Wei (*CAEP*)

Surface Science and Corrosion—I

Session Chair: David Geeson (*AWE*)

Location: Coast Room **Time:** 9:50 am-12:20 pm

9:50 am: Oxide Conversion Kinetics Investigated by Spectroscopic Ellipsometry, L. N. Dinh, R. Gollott, C. K. Saw, J. Stanford, A. J. Nelson, P. G. Allen, C. Gardner, C. Hrousis, W. McLean II (*LLNL*)

10:35 am: Auger Electron Spectroscopy of Plutonium Metal and Oxides, David P. Moore, Thomas J. Venhaus, John J. Joyce, Daniel T. Olive, Sarah C. Hernandez, Kevin S. Graham (*LANL*)

11:10 am: Electron and Ion Beam Effects in the Quantitative Analysis of Pu Surface Chemistry, A. J. Nelson, S. B. Donald, D. J. Roberts, W. A. Tlabot, W. McLean (*LLNL*)

11:35 am: Adsorption, Dissociation, and Desorption of Water Molecules on the PuO₂ Surface Studied by *Ab Initio* Molecular Dynamics Simulations, Cui Zhang, Yu Yang, Ping Zhang (*IAPCM*)

12:00 pm: Identification of Chlorine-Containing Gases in PuO₂ Storage Containers, Daniel Rios, John M. Berg, Andrew J. Gaunt, Joshua E. Narlesky, Douglas K. Veirs, Laura A. Worl (*LANL*)

Technical
Sessions:
Wednesday
September 12

WEDNESDAY, SEPTEMBER 12

WEDNESDAY BANQUET - 7:00 PM

Banquet & After Dinner Speaker: The Pu Unknown Unknowns

Location: Pacific CD **Time:** 7:00-9:00 pm

Speaker: Dr. Terry C. Wallace, Jr. (*Laboratory Director, LANL*)

Dr. Terry C. Wallace, Jr., is the eleventh director of Los Alamos National Laboratory and current president of Los Alamos National Security, LLC. Los Alamos has played a critical role in some of the most transformational discoveries of the 20th and 21st centuries. As a premier national nuclear science laboratory, Los Alamos is a principal contributor to the U.S. Department of Energy's mission to maintain the nation's nuclear weapons stockpile. It also protects the nation through programs in nuclear counterproliferation and nonproliferation. Los Alamos creates innovative science and technology that define the state of the art, and 2018 marks our 75th anniversary of joining the Manhattan Project, followed by our first intelligence mission the subsequent year.

Prior to becoming Laboratory Director, Wallace was the Laboratory's Principal Associate Director for Global Security and the Senior Intelligence Executive, leading national security programs—nonproliferation, counterproliferation and industry partnerships. He served as the Principal Associate Director for Science, Technology and Engineering and led implementation of the capability model for scientists and engineers. He also developed the science pillars that guide our institutional investment strategies. He has represented Los Alamos and DOE around the world, meeting with scientists and leaders of allied countries and attending significant collaborations with non-NATO countries.

Wallace is an internationally recognized scientific authority on geophysics and forensic seismology, which is the study of earthquakes and seismic waves as they relate to nuclear weapons testing, and has evaluated more than 1,700 U.S. and foreign nuclear tests. He is one of a few scientists to have a newly discovered mineral named in his honor for his efforts in education, research and service to mineralogy (Terrywallaceite). He is a Fellow in the American Geophysical Union and has served on the Board of Earth Sciences & Resources in the National Academy of Sciences. His awards include the Brown Medal, the Langmuir Medal for Research, the Macelwane Medal and the Carnegie Mineralogical Award. He was a distinguished educator at the University of Arizona for 20 years and continues to be a notable author through peer-reviewed journals, science magazines, a college textbook and a blog exploring the nexus of science, running and travel.

Wallace was raised in Los Alamos and is the first Laboratory Director with such a strong tie to New Mexico. He holds doctorate and master's degrees in geophysics from the California Institute of Technology and bachelor's degrees in geophysics and mathematics from New Mexico Institute of Mining and Technology.

Technical
Sessions:
Wednesday
September 12

THURSDAY, SEPTEMBER 13

PLENARY SPECIAL SESSION - 8:30 AM

Plenary Session—VI

Session Co-Chairs: Rebecca J. Abergel (*Univ of California, Berkeley*), Albert Migliori (*LANL*)

Location: Pacific AB **Time:** 8:30-9:45 am

8:30 am: Evaluating Covalency for Plutonium and the Other f-Elements, Stefan G. Minasian (*LBNL*), Sharon E. Bone (*SLAC National Accelerator Lab*), Samantha K. Cary, David L. Clark, Alex S. Ditter, Justin N. Cross (*LANL*), Matthias W. Loble (*Freudenberg Technology Innovation and Freudenberg Performance Materials*), Andrew Kerridge (*Lancaster Univ*), Nikolas Kaltsoyannis (*The Univ of Manchester*), Veronika Mocko (*LANL*), Henry S. La Pierre (*Georgia Tech*), Angela C. Olson, Brian L. Scott (*LANL*), S. Chantal E. Steiber (*California State Polytechnic Univ*), Benjamin W. Stein, Jing Su (*LANL*), David K. Shuh (*LBNL*), Marianne P. Wilkerson, Ping Yang (*LANL*)

9:10 am: Fingerprints of Electron Correlations in Various Phases of Plutonium: Electronic Properties of Pu₁₉O₈ Simulating β-Pu, Ladislav Havela, Silvie Maskova, Pavel Javorsky (*Charles Univ*), Jindrich Kolorenc, Alexander Shick (*ASCR*), Eric Colineau, Jean-Christophe Griveau, Rachel Eloirdi, Thomas Gouder (*EC-JRC*), invited

TECHNICAL SESSIONS - 9:50 AM

Coordination Chemistry—I

Session Chair: Rebecca J. Abergel (*Univ of California, Berkeley*)

Location: Pacific AB **Time:** 9:50 am-12:20 pm

9:50 am: New Aspects of Actinides (Th, U and Np) Chemistry in Oxo-Selenium System, Eike M. Langer, Evgeny V. Alekseev, (*FzJ*)

10:35 am: Np and Pu Electronic Structure Through Metal-Ligand Multiple Bonds, Andrew J. Gaunt (*LANL*), invited

11:10 am: Schiff Base Coordination Complexes with Pu(IV) and Ce(IV), Bonnie E. Klamm, Matthew L. Marsh, Cory J. Windorff, David E. Hobart, Thomas E. Albrecht-Schmitt (*Florida State Univ*)

11:35 am: Complexation of Pu(VI) with N,N, N', N' (*TMOGA*) and Related Ligands: Optical Properties and Complexation Modes, Lei Xu, Ning Pu, Chao Xu, Jing Chen (*Tsinghua Univ*)

12:00 pm: Plutonium Chlorides: A Platform to Explore Assembly, Structure and Bonding, R. Gian Surbella (*PNNL*), Lucas C. Ducati (*Univ of São Paulo*), Jochen Autschbach (*Univ at Buffalo*), Jon M. Schwantes (*PNNL*), Christopher L. Cahill (*The George Washington Univ*),

Condensed Matter Physics—I

Session Chair: Boris Maierov (*LANL*)

Location: Coast Room **Time:** 9:50 am- 12:20 pm

9:50 am: Formation and Migration Barrier Energies of Point Defects in δ-Pu and δ-Pu-Ga, Sarah C. Hernandez, Franz J. Freibert, Richard Hoagland, Blas P. Uberuaga, John M. Wills (*LANL*), invited

10:35 am: Theoretical Analysis of the Properties of Pu(IV) and Pu (VI), Paul S. Bagus (*UNT*), Connie J. Nelin (*Consultant*), invited

11:10 am: X-Ray Diffraction and Raman Characterization of a Variety of PuO₂ Samples, Brian L. Scott, Laura E. Wolfsberg, Jared T. Stritzinger, Alison L. Pugmire, Marianne P. Wilkerson (*LANL*)

11:35 am: Advanced X-Ray Diffraction Line Profile Analysis Methods for Understanding the Microstructure Properties Distributions of Plutonium Oxide as a Function of Processing Conditions, Lucas E. Sweet, Jordan F. Corbey (*PNNL*), Matteo Leoni (*Univ of Trento*)

12:00 pm: Exploring the Topology and Electronic Correlations in PuB₄, Laurel E. Winter, Hongchul Choi, Wei Zhu, Samantha Cary, Zhoushen Huang, Ross D. McDonald, Veronika Mocko, Brian L. Scott, Paul H. Tobash, Joe D. Thompson, Stosh A. Kozimor, Eric D. Bauer, Jian-Xin Zhu, Filip Ronning (*LANL*)

Technical
Sessions:
Thursday
September 13

THURSDAY, SEPTEMBER 13

PLENARY SPECIAL SESSION - 2:30 PM

Plenary Session—VII

Session Co-Chairs: Klaus Luetzenkirchen (*Inst for Transuranium Elements*), Paul Roussel (*AWE*)

Location: Pacific AB **Time:** 2:30-3:45 pm

2:30 pm: Environmental Chemistry of Plutonium, Horst Geckeis (*KIT*), Mavrik Zavarin (*LLNL*), Brit Salbu, Ole Chr. Lind, Lindis Skipperud (*NMBU*), invited

3:10 pm: Plutonium Oxidation and Corrosion with EXAFS, Alison L. Pugmire (*LANL*), invited

TECHNICAL SESSIONS - 3:50 PM

Detection & Analysis—II

Session Chair: Klaus Luetzenkirchen (*Inst for Transuranium Elements*)

Location: Pacific AB **Time:** 3:50-6:20 pm

3:50 pm: Focused Ion Beam and Microanalysis of Uranium and Plutonium Materials for Nuclear Forensics, Brandon W. Chung, Scott B. Donald, David J. Roberts, William A. Talbot, Denise D. Ashley, Nick E. Teslich, Art J. Nelson (*LLNL*), invited

4:35 pm: Detection and Analysis of Molecular Speciation for Assessing Chemical Behavior, Marianne P. Wilkerson (*LANL*), John Bargar (*SLAC National Accelerator Lab*), David L. Clark (*LANL*), Steven D. Conradson (*SLAC National Accelerator Lab*), Alexander S. Ditter, John J. Joyce, Stosh A. Kozimor, Daniel T. Olive, Alison L. Pugmire, Amy R. Ross, Brian L. Scott, Jared T. Stritzinger, Gregoy L. Wagner, Angelique D. Wall (*LANL*), Samuel Webb (*SLAC National Accelerator Lab*), invited

5:10 pm: Process Monitoring for Plutonium Content of U-TRU Alloys, B. R. Westphal, S. X. X. Li, D. A. Sell, J. C. Westphal (*INL*)

5:35 pm: On-Line Monitoring of Pu: Speciation Characterization, Spectroelectrochemical Analysis, and Real-Time Quantification for CoDCon Process, Amanda M. Lines, Susan R. Adami, Sergey I. Sinkov, Amanda J. Casella, Gabriel B. Hall, Jarrod R. Allred, Gregg J. Lumetta, Samuel A. Bryan (*PNNL*)

6:00 pm: Role of Carbon Oxides on Gas Formation Through Radiolysis Process in Nuclear Storages, L. Berlu, L. Venault, J. Vermeulen (*CEA*)

Surface Science and Corrosion—II

Session Chair: Paul Roussel (*AWE*)

Location: Coast Room **Time:** 3:50-6:20 pm

3:50 pm: Development of Rapid Semi-Empirical Quantum Models for Plutonium Surface Corrosion, Nir Goldman (*LLNL/Univ of California, Davis*), Bálint Aradi (*Univ of Bremen*), Rebecca K. Lindsey, Laurence E. Fried (*LLNL*)

4:35 pm: PhotoElectron Spectroscopy Study of H₂O Adsorption and Dissociation on Oxidized Pu Metal, L. Jolly, B. Ravat, B. Oudot, F. Delaunay (*CEA*)

5:10 pm: A Catalytic Approach to Thermal Recombination of H₂ and O₂ over the Surface of PuO₂ and PuO₂ Surrogates, Thomas A. Donoclift (*Univ of Manchester*), Robin M. Orr, Howard E. Sims (*NNL*), Simon M. Pimblott (*INL*)

5:35 pm: The Initial Kinetics and Corrosion Morphology for Reaction of Pu₂O₃-Coated Plutonium with Low Pressure Hydrogen, Gan Li, Haibo Li, Wenhua Luo (*CAEP*)

6:00 pm: Investigating the Dependence of Hydrogen Generation from High-Purity Plutonium Oxides on Radiolysis, J. E. Narlesky, D. K. Veirs, M. A. Stroud, J. M. Berg, J. Kulis, E. L. Romero, D. Rios, K. V. Wilson, L. A. Worl (*LANL*)

Technical
Sessions:
Thursday
September 13

FRIDAY, SEPTEMBER 14

PLENARY SPECIAL SESSION - 8:30 AM

Plenary Session—VIII

Session Co-Chairs: Andrew Gaunt (*LANL*), Paul Bagus (*Univ of North Texas*)

Location: Pacific AB **Time:** 8:30-9:45 am

8:30 am: Pu Electronic Structure and Speciation Applying Pu M₅ Edge HR-XANES and RIXS, Tonya Vitova (*KIT*), invited

9:10 am: Recent Developments at the Interface of Quantum Matter and Plutonium Science, John L. Sarrao (*LANL*)

TECHNICAL SESSIONS - 9:50 AM

Coordination Chemistry—II

Session Chair: Andrew Gaunt (*LANL*)

Location: Pacific AB **Time:** 9:50 am-12:20 pm

9:50 am: Actinide Chemistry and Selectivity Revealed Through In Vivo Contamination and Decorporation Experiments, Rebecca J. Abergel (*Univ of California Berkeley/LBNL*), Gauthier J.-P. Deblonde, Dahlia D. An, Stacey Gauny (*LBNL*), invited

10:35 am: Covalency of Actinides (An^{III}, An^{IV}) with Chelating Agents Across the Actinide Series (An = Th to Es), Ping Yang, Enrique Batista, Morgan Kelley, Jing Su (*LANL*), invited

11:10 am: Inner and Outer Sphere Plutonium(IV) Coordination with Amide and Carbamide Ligands, Dominique Guillaumont, Eléonor Acher, Clémence Berger, Thomas Dirks, Nathalie Boubals, Thomas Dumas, Christelle Tamain, Cécile Marie, Laurence Berthon (*CEA*)

11:35 am: δ Back-Donation in An^{IV} Metallacycles (An=Th, Pa, U, Np, Pu), Ivan A. Popov, Morgan P. Kelley, Enrique R. Batista, Ping Yang (*LANL*)

12:00 pm: Structural Investigation of Plutonium Oxalate Species over Time and Comparison of Their Oxide Products, Jordan F. Corbey, Sergey I. Sinkov, Lucas E. Sweet, Calvin H. Delegard, Amanda J. Casella, David E. Meier (*PNNL*)

Condensed Matter Physics—II

Session Chair: Paul Bagus (*Univ of North Texas*)

Location: Pacific CD **Time:** 9:50 am-12:20 pm

9:50 am: Thermoelectric Properties of Strongly Correlated Compounds AnPd₃ (An = Pu, Np), K. Gofryk (*INL*), J.-C. Griveau, E. Colineau (*DG Joint Research Center*), K. A. McEwen (*Univ College, London*), W. J. Nellis (*Harvard Univ*), J. L. Smith (*LANL*)

10:35 am: Magnetostriction of Ga-Stabilized δ -Pu, Neil Harrison, Jonathon B. Betts, Marcelo Jaime, Paul Tobash (*LANL*), invited

11:10 am: Unifying DFT+U Approach for Plutonium Modeling, Boris Dorado, Bernard Amadon, François Bottin, Johann Bouchet (*CEA*)

11:35 am: Free-Energy Calculations for Plutonium, Per Söderlind, Babak Sadigh (*LLNL*)

12:00 pm: Temperature Dependent and Real Time Studies of Elastic Moduli of δ -²³⁹Pu and Alloys, Boris Maiorov, Jonathan B. Betts, Fedor F. Balakirev, Albert Migliori (*LANL*)

PLENARY SPECIAL SESSION - 12:45 PM

Closing Session

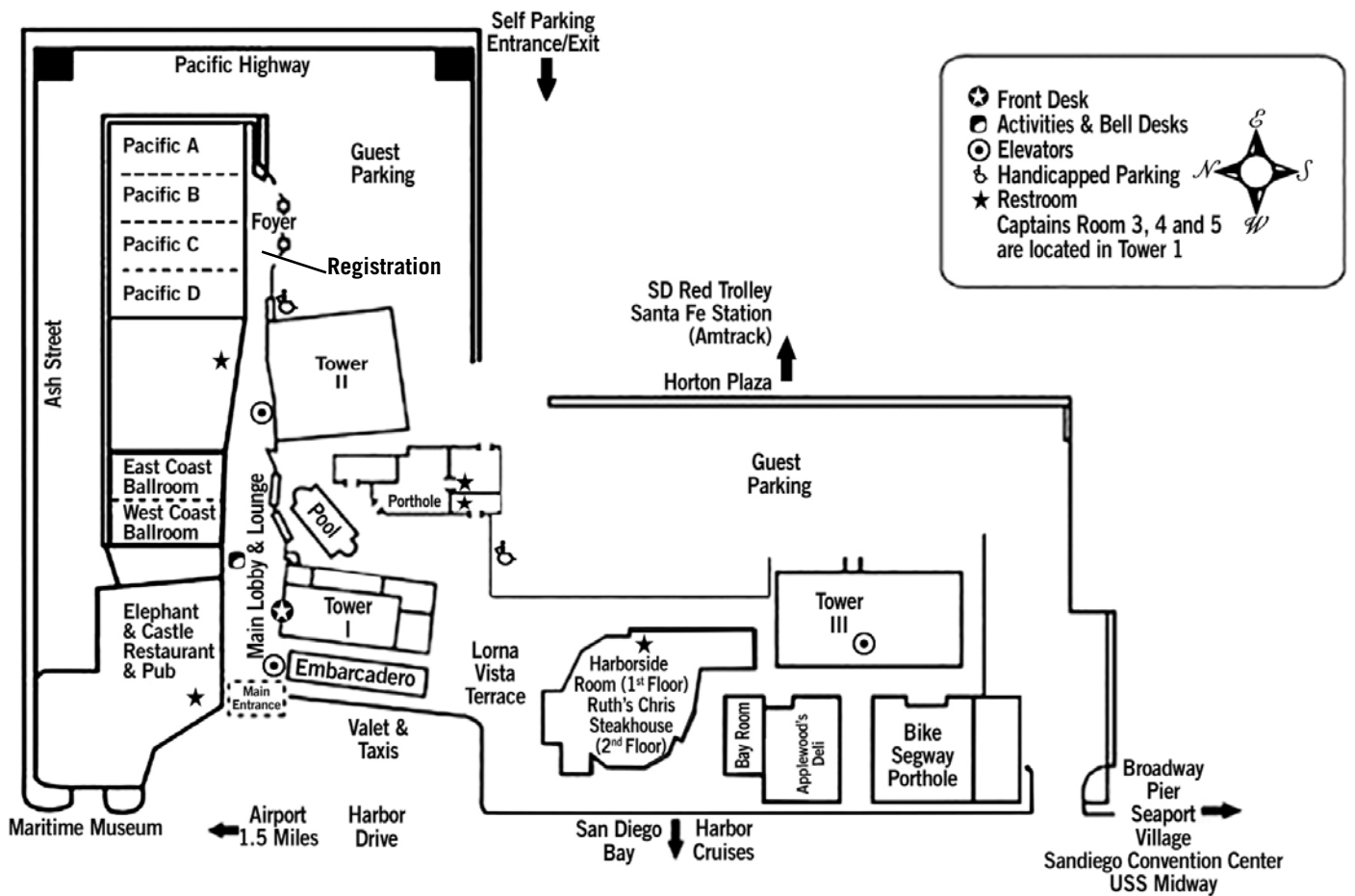
Session Chair: Franz Freibert (*LANL*)

Location: Pacific AB **Time:** 12:45-1:15 pm

Technical
Sessions:
Friday
September 14

Hotel Floorplan

Wyndham San Diego Bayside
 1355 North Harbor Drive
 San Diego, California 92101
 619-232-3861 (Main)





ANS Meetings

ADVANCES IN NUCLEAR NONPROLIFERATION TECHNOLOGY AND POLICY CONFERENCE 2018
SEP 23-27, 2018 | Wilmington, NC | Hilton Wilmington Riverside

APPLICABILITY OF RADIATION-RESPONSE MODELS TO LOW DOSE PROTECTION STANDARDS
SEP 30-OCT 3, 2018 | Pasco, WA | Red Lion Hotel Pasco

2018 PACIFIC BASIN NUCLEAR CONFERENCE (PBNC 2018)
SEP 30-OCT 5, 2018 | San Francisco, CA | Hyatt Regency

2018 ANS WINTER MEETING AND NUCLEAR TECHNOLOGY EXPO
NOV 11-15, 2018 | Orlando, FL | Hilton Orlando Bonnet Creek

EMBEDDED TOPICAL: 23RD TOPICAL MEETING ON THE TECHNOLOGY OF FUSION ENERGY (TOFE)

EMBEDDED TOPICAL: INTERNATIONAL TOPICAL MEETING ON ADVANCES IN THERMAL HYDRAULICS

CONTE 2019: CONFERENCE ON NUCLEAR TRAINING AND EDUCATION: A BIENNIAL INTERNATIONAL FORUM
FEB 5-7, 2019 | St. Augustine, FL | World Golf Village Renaissance St. Augustine Resort

11TH NUCLEAR PLANT INSTRUMENTATION, CONTROL AND HUMAN-MACHINE INTERFACE TECHNOLOGIES (NPIC&HMIT) 2019
FEB 9-14, 2019 | Orlando, FL

NUCLEAR AND EMERGING TECHNOLOGIES FOR SPACE (NETS) 2019
FEB 25-27, 2019 | Richland, WA

INTERNATIONAL HIGH-LEVEL RADIOACTIVE WASTE MANAGEMENT 2019 (IHLRWM 2019)
APR 14-18, 2019 | Knoxville, TN | Knoxville Convention Center

2019 INTERNATIONAL TOPICAL MEETING ON PROBABILISTIC SAFETY ASSESSMENT AND ANALYSIS (PSA 2019)
APR 28-MAY 3, 2019 | Charleston, SC | Charleston Marriott

2019 ANS ANNUAL MEETING
JUN 9-13, 2019 | Minneapolis, MN | Hyatt Regency Minneapolis

UTILITY WORKING CONFERENCE AND VENDOR TECHNOLOGY EXPO
AUG 4-7, 2019 | Amelia Island, FL | Omni Amelia Island Plantation

19TH INTERNATIONAL CONFERENCE ON ENVIRONMENTAL DEGRADATION OF MATERIALS IN NUCLEAR POWER SYSTEMS - WATER REACTORS
AUG 18-22, 2019 | Boston, MA | Seaport Hotel & World Trade Center

18TH INTERNATIONAL TOPICAL MEETING ON NUCLEAR REACTOR THERMAL HYDRAULICS
AUG 18-22, 2019 | Portland, OR | Marriott Portland Downtown Waterfront

M&C 2019
AUG 25-29, 2019 | Portland, OR | Marriott Portland Downtown Waterfront

GLOBAL/TOP FUEL 2019
SEP 22-27, 2019 | Seattle, WA | The Westin Seattle

