

Plutonium Futures—The Science final Program

Sunday, July 9, 2000

Conference Registration
La Fonda Hotel Mezzanine
12:00 NOON–8:00 P.M.

Tutorial Session

La Fonda Hotel, 1:15–5:00 P.M.
Session Chair: David L. Clark

Welcome
Fundamentals of Nuclear and Radiochemistry
Introduction to Chemistry and Physics of Plutonium
Overview of the Nuclear Fuel Cycle

Conference Reception

La Fonda Hotel, La Terraza, 6:00–8:00 P.M.

Monday, July 10, 2000

Conference Registration
La Fonda Hotel

Opening/ Welcome

La Fonda Ballroom, 8:00–8:10 A.M.

8:00

K. K. S. Pillay
Conference Program Co-Chair
Opening

8:05

John C. Browne
Director, Los Alamos National Laboratory
Welcome

Plenary Session

La Fonda Ballroom, 8:00 A.M.–12:00 NOON
Session Chairs: Timothy G. George & R. Bruce Matthews

8:10

Ernest J. Moniz
Undersecretary of Energy, U.S. Department of Energy

8:45

Nikolai Ponomarev-Stepnoi
Academician, Russian Research Centre, Kurchatov Institute

9:20

Thomas B. Cochran
Natural Resources Defense Council
“Plutonium, What is its Future?”

BREAK - 9:55 AM

**I. Materials
Science/
Nuclear Fuels**

10:15

Leo Brewer
Department of Chemistry, University of California
“How to Develop New Materials”

10:50

Vladimir Onoufrieu
International Atomic Energy Agency
“Status and Trends in Plutonium Recycling in Nuclear Power Reactors”

11:25

Siegfried S. Hecker
Los Alamos National Laboratory
“Fundamentally, Why Is Plutonium Such an Unusual Metal?”

La Fonda Ballroom, 1:30–5:00 P.M.
Session Chairs: Rodney C. Ewing & Didier Haas

1:30

Self-Irradiation of Pu, Its Alloys and Compounds
L. F. Timofeeva
(GNC RF A.A. Bochvar’s VNIINM, Russia)

1:55

Modeling of Delta-Phase Stabilization and Compositional Homogenization in Pu-1 Wt. % Ga Alloys
J. N. Mitchell, F. E. Gibbs, T. G. Zocco, R. A. Pereyra
(Los Alamos National Laboratory)

2:20

Radiation Resistance of Gadolinium Zirconate Pyrochlore
S. X. Wang¹, L. M. Wang¹, R. C. Ewing¹, K. V. Govidan Kuty², W. J. Weber³
(¹University of Michigan, ²Indira Gandhi Centre for Atomic Research, India,
³Pacific Northwest National Laboratory)

2:45

Plutonium Stabilization in Zircon: Effects of Self-Radiation
W. J. Weber¹, N. J. Hess¹, R. E. Williford¹, H. L. Heinisch¹, B. D. Begg², S. D. Conradson³, R. C. Ewing⁴
(¹Pacific Northwest National Laboratory, ²Australian Nuclear Science and Technology Organisation,
Australia, ³Los Alamos National Laboratory, ⁴University of Michigan)

BREAK - 3:10 PM

3:40

Inert Matrix Fuels for Incineration of Plutonium and Transmutation of Americium
Hj. Matzke
(European Commission, Joint Research Centre, Institute for Transuranium Elements, Germany)

4:05

Capability of the MIMAS Process to Convert the Stockpiles of Separated Plutonium into MOX Fuel for Use in LWRs
P. Deramaix, Y. Vanderborck, W. Couwenbergh
(Belgonucleaire S.A.)

4:30

Some Less Conventional Options for Plutonium Disposal
W. Stoll
(Germany)

**Plenary Speakers
& Invited Guests
Panel Discussion
—All Participants**

La Fonda Ballroom, 7:00–9:00 P.M.
Panel Chair: Paul T. Cunningham

Tuesday, July 11, 2000

II. Condensed Matter Physics

La Fonda Ballroom, 8:30 A.M.–12:00 NOON
 Session Chairs: Allen Hartford, Jr. & Barbara Martinez

- 8:30 **The Electronic Structure and Elastic Properties of the Actinide Chalcogenides (U,Np,Pu,Am): The Puzzle of AmTe**
 P. Wachter¹, M. Filzmoser¹, J. Rebizant²
 (¹Laboratorium für Festkörperphysik, ETH Zürich, Switzerland
²European Institute for Transuranium Elements, Germany)
- 9:00 **Phase Transitions in Plutonium: New Insights from Diffraction**
 A. C. Lawson¹, B. Martinez¹, J. A. Roberts¹, R. B. Von Dreele¹, J. W. Richardson, Jr.², A. Mehta³, J. Arthur³
 (¹Los Alamos National Laboratory, ²Argonne National Laboratory,
³Stanford Synchrotron National Laboratory)
- 9:25 **Magnetic Properties Of Pu_(1-x)Am_x Solid Solutions**
 M. Dormeval¹, N. Baclet¹, J. Fournier²
 (¹CEA-Centre de Valduc, France, ²Université Joseph Fourier LEG-INPG, France)
- 9:50 **X-ray Magnetic Scattering from Transuranium Systems**
 G. H. Lander¹, D. Mannix^{1,2}, R. Caciuffo³, N. Bernhoeft⁴, P. Normile⁵,
 W. G. Stirling⁵, E. Lidström², A. Hiess⁶, C. Vettier^{2,6}, F. Wastin¹, and J. Rebizant¹.
 (¹European Commission, JRC, Institute for Transuranium Elements, Germany, ²European Synchrotron Radiation Facility, France, ³Università di Ancona, Italy, ⁴Dépt. de Recherche Fond. sur la Matière Condensée, France, ⁵Physics Dept., UK, ⁶Institut Laue Langevin, France)
- BREAK - 10:10 PM
- 10:40 **The Stabilization of fcc Plutonium: A Solid-State-Solution-Like Phase of Stable and Fluctuating Configuration Plutonium**
 B. R. Cooper
 (West Virginia University)
- 11:05 **Electronic Structure of α - and β -Pu from PES Measurements**
 A. J. Arko, J. J. Joyce, L. Morales, J. Wills, J. Lashley
 (Los Alamos National Laboratory)
- 11:30 **Resonant Ultrasound Studies of Pu**
 A. Migliori, J. P. Baiardo, T. W. Darling, F. Friebert, B. Martinez, H. Roder, D. A. Dimitrov
 (Los Alamos National Laboratory)

Poster Session

La Fonda Santa Fe Room, New Mexico Room, & Mezzanine, 1:30–5:00 P.M.
 Session Co-Chairs: Sandra Mecklenburg & David E. Hobart

Wednesday, July 12, 2000

III. Actinides in the Environment/ Separation and Analysis

La Fonda Ballroom, 8:30 A.M.–12:00 NOON
 Session Chairs: Dave L. Clark & Ann Gibbs

- 8:30 **Aquatic Chemistry of Actinides: Is a Thermodynamic Approach Appropriate to Describe Natural Dynamic Systems?**
 J. I. Kim
 (Forschungszentrum Karlsruhe, Institut für Nukleare Entsorgungstechnik, Germany)

8:55	<p>Sorption of Plutonium onto Clinoptilolite (Zeolite) Colliods N. L. Hakem, A. Brachmann, M. Zavarin, A. B. Kersting (Lawrence Livermore National Laboratory)</p>
9:20	<p>Actinide (Pu, U) Interactions with Aerobic Soil Microbes and Their Exudates: Fundamental Chemistry and Effects on Environmental Behavior M. P. Neu, C. E. Ruggiero, M. T. Johnson, J. R. Fairlee, J. H. Matonic, L. A. Vanderberg, L. E. Hersman, L. He, M. M. Cox, D. J. Chitwood, P. D. Gladden, G. L. Wagner (Los Alamos National Laboratory)</p>
9:45	<p>The Interaction of Plutonium with Bacteria in the Repository Environment J. B. Gillow¹, A. J. Francis¹, D. A. Lucero², H. W. Papenguth² (¹Brookhaven National Laboratory, ²Sandia National Laboratories)</p>
BREAK - 10:10 PM	
10:40	<p>Transuranium Removal from Hanford High Level Waste Simulants Using Sodium Permanganate and Calcium W. R. Wilmarth, S. W. Rosencrance, C. A. Nash, F. F. Fonduer, D. P. DiPrete, C. C. DiPrete (Savannah River Technology Center, Westinghouse Savannah River Company)</p>
11:05	<p>Radiolysis of Hexavalent Plutonium in Solutions of Uranyl Nitrate Containing Fission Product Simulants P. J. W. Rance¹, B.Ya. Zilberman², G. A. Akopov² (¹British Nuclear Fuels, Sellafield, Seasale, Cumbria, UK, ²V.G. Khlopin Radium Institute, 2nd Murinsky Prospekt, St. Petersburg, Russia)</p>
11:30	<p>Contribution of the Surface Contamination of Uranium-materials on the Quantitative Analysis Results by Electron Probe Microbeam Analysis O. Bonino¹, C. Fournier¹, C. Merlet², C. Fucili¹, O. Dugne¹ (¹DCC/DTE/SIM – CEA Valrho BP 111, France, ²ISTEEM, Université de Montpellier II, France)</p>
IV. Actinides/ Processing	<p>La Fonda Ballroom, 1:30–5:00 P.M. Session Chairs: Jae-II Kim & Kenneth L. Peddicord</p>
1:30	<p>Oxidation/Reduction of Multivalent Actinides in the Subsurface D. T. Reed¹, B. E. Rittman², S. B. Aase¹, A. J. Kropf¹ (¹Argonne National Laboratory, ²Northwestern University, Evanston, IL)</p>
1:55	<p>Gas-Phase Plutonium Oxide Cluster Ions and Initial Actinide Ion Trapping Experiments J. K. Gibson, R. G. Haire, D. C. Duckworth (Oak Ridge National Laboratory)</p>
2:20	<p>Actinide Science with Soft X-ray Synchrotron Radiation D. K. Shuh (The Glenn T. Seaborg Center, Berkeley)</p>
2:45	<p>Recent Achievements in the Development of Partitioning Processes of Minor Actinides from Nuclear Wastes Obtained in the Frame of the NEWPART European Programme (1996-1999) C. Madic¹, M. J. Hudson², J. O. Lijenzin³, J. P. Glatz⁴, R. Nannicini⁵, A. Facchini⁶, Z. Kolarik⁷, R. Odoj⁸ (¹CEA/Saclay, France, ²University of Reading, ³Chalmers University of Technology, ⁴ITU, JRC, Karlsruhe, ⁵ENEA, Ispra, Italy, ⁶Politecnico Di Milano, ⁷INE, KFK, Karlsruhe, Germany, ⁸ISR, FZJ, Juelich, Germany)</p>
BREAK - 3:10 PM	

Conference
Banquet

3:45 **Actinide Chemistry: From Test Tube to \$B Plant – A BNFL Perspective**
P. Parkes
(British Nuclear Fuels)

4:10 **High Level Waste Partitioning Studies at the Research Centre Jülich**
U. Wenzel
(Forschungszentrum Juelich - Institute for Safety Research and Reactor Technology
Section for Nuclear Waste Management)

4:35 **New Nuclear Safe Plutonium Ceramic Compositions with Neutron Poisons for Plutonium Storage**
B. A. Nadykto¹, L. F. Timofeeva²
(¹RFNC-VNIIEF, Russia, ²GSCRF-VNIINM, Russia)

La Fonda Ballroom, 6:15–8:15 P.M.

“Plutonium, Nonproliferation, and the Future of Nuclear Power”

John P. Holdren
(Teresa and John Heinz Professor of Environmental Policy at the Kennedy School of Government and
Director of the Science, Technology, and Public Policy Program, Harvard University)

Thursday, July 13, 2000

V. Actinides/
TRU Wastes

La Fonda Ballroom, 8:30 A.M.–12:00 NOON
Session Chairs: Mark D. Hoover & Gerd M. Rosenblatt

8:30 **Theoretical Predictions of Hydrolysis and Complex Formation
of the Heaviest Elements**
V. Pershina
(Institut für Kernchemie, Universität Mainz, Germany)

8:55 **New Field of Actinides Solution Chemistry; Electrochemical Study on Phase Transfer
of Actinide Ions across Aqueous/Organic Solutions Interface**
Y. Kitatsuji¹, H. Aoyagi¹, Z. Yoshida¹, S. Kihara²
(¹Advanced Science Research Center, Japan Atomic Energy Research Institute, Japan, ²Department of
Chemistry, Kyoto Institute of Technology, Japan)

9:20 **Extraction of Lanthanides and Actinides from H. A. Waste by Calix[4]Arenes Bearing CMPO Units**
J. F. Dozol, A. Garcia Carrera, H. Rouquette
(DCC /DESD / SEP / LPTE, CEA Cadarache, France)

9:45 **Two New Insoluble Polymer Composites for the Treatment of LLW:**
1. Polypyrrole Doped by UO₂²⁺ Complexing Polyanions 2. UO₂²⁺ Complexing Sol-gel Based Compos-
ites. Stability Constants, Leaching Tests, Alpha and Gamma Irradiation
D. Leroy¹, L. Martinot¹, F. Caprasse¹, C. Jérôme², R. Jérôme²
(¹Coordination and Radiochemistry, University of Liège, Belgium, ²Center for Education and Research on
Macromolecules (CERM), University of Liège, Belgium)

BREAK - 10:10 PM

10:30 **Waste Forms from the Electrometallurgical Treatment of DOE Spent Fuel:
Production and General Characteristics**
R. W. Benedict¹, S. G. Johnson¹, D. D. Keiser¹, T. P. O'Holleran¹, K. M. Goff¹, S. McDeavitt², W. Ebert²
(¹Argonne National Laboratory-West, ²Argonne National Laboratory-East)

**Conference
Summary and
Assessment**

10:55

Plutonium and Uranium Disposition in a Sodalite/Glass Composite Waste Form via XAFS

M. K. Richmann, A. J. Kropf, D. T. Reed, S. B. Aase,
M. C. Hash, L. Putty, D. Lexa.
(Argonne National Laboratory, Chemical Technology Division)

La Fonda Ballroom, 11:20 A.M.–11:50 A.M.

Darleane C. Hoffman

Lawrence Berkeley National Laboratory
Conference Rapporteur

La Fonda Ballroom, 11:50 A.M.– 12:00 NOON

K. C. Kim

Conference Program Co-Chair & Technical Host
Closing

Poster Session Presentations

La Fonda Hotel Santa Fe Room, New Mexico Room, & Mezzanine
Session Co-Chairs: Sandra Mecklenburg & David E. Hobart
1:30–5:00 P.M., Tuesday, July 11, 2000

Materials Science

1. **XANES and EXAFS Studies of Plutonium (III, VI) Sorbed on Thorium Oxide.**
R. Drot¹, E. Ordonez-Regil¹, E. Simoni¹, Ch. Den Auwer², Ph. Moisy²
(¹Université Paris Sud, France, ²CEA Marcoule, DCC/DRRV/SEMP, France)
2. **Effects Of Fission Product Accumulation in Cubic Zirconia**
L. Wang, S. Wang, S. Zhu, R. Ewing
(University of Michigan)
3. **Identification of a Physical Metallurgy Surrogate for the Plutonium-1 Wt% Gallium Alloy**
F. Gibbs, D. L. Olson, W. H. Hutchinson
(Los Alamos National Laboratory)
4. **Innovative Concepts for the Plutonium Facilities at La Hague**
B. Gillet¹, F. Drain², A. Gresle²
(¹COGEMA, France, ²SGN, France)
5. **Anisotropic Expansion of Pu Through the ?????? Phase Transitions While Under Radial Compressive Stress**
D. R. Spearing, D. K. Veirs, F. C. Prenger
(Los Alamos National Laboratory)
6. **Contribution of Water Vapor Pressure to Pressurization of Plutonium Dioxide Storage Containers**
D. K. Veirs, J. S. Morris, D. R. Spearing
(Los Alamos National Laboratory)
7. **Surveillance of Sealed Containers with Plutonium Oxide Materials**
L. A. Worl, J. M. Berg, D. Ford, D. D. Hill, M. Martinez, J. McFarland, J. Morris, D. Padilla,
C. Prenger, K. Rau, C. Smith, D. K. Veirs
(Los Alamos National Laboratory)

- 8. PuO₂ Surface Catalyzed Reactions: Recombination of H₂ and O₂ and the Effects of Adsorbed Water on Surface Reactivity**
L. Morales
(Los Alamos National Laboratory)
- 9. Kinetics of the Reaction Between Plutonium Dioxide and Water from 25 to 350°C: Formation and Properties of the Phase PuO_{2+x}**
L. Morales¹, J. Haschke², T. Allen¹
(¹Los Alamos National Laboratory, ²Actinide Consulting)
- 10. A Conceptual and Computational Model for Gas Formation from Impure Calcined Plutonium Oxides**
J. L. Lyman, P. G. Eller
(Los Alamos National Laboratory)
- 11. Status of the Pit Disassembly and Conversion Facility**
W. T. Wood, L. T. Christensen
(Los Alamos National Laboratory)
- 12. Plutonium Packaging and Long Term Storage**
J. A. Lloyd, D. E. Wedmen
(Los Alamos National Laboratory)
- 13. Phase Composition of Murataite Ceramics for Excess Weapons Plutonium Immobilization**
I. A. Sobolev¹, S.V. Stefanovsky¹, B. F. Myasoedov², Y. M. Kuliako², S.V. Yudintsev³
(¹SIA Radon, Russia, ²Institute of Geochemistry, Russia, ³Institute of Geology of Ore Deposits, Russia)
- 14. Analysis of Strain Anisotropy in Delta Stabilized Pu-Ga Alloys**
L. Morales, A. Lawson, J. Kennison
(Los Alamos National Laboratory)
- 15. Preparation of Actinide Boride Materials via Solid-State Metathesis Reactions and Actinide Dicarbolide Precursors**
A. J. Lupinetti, J. Fife, E. Garcia, K. D. Abney
(Los Alamos National Laboratory)
- 16. The Self-Irradiation Driven Enhancement of Diffusion Processes in Nuclear-Safe Ceramics**
E. A. Smirnov¹, L. F. Timofeeva²
(¹Moscow State Engineering Physics Institute [Technical University], Russia, ²All-Russia Scientific Research A.A. Bochvar Institute of Inorganic Materials, Russia)
- 17. The Regularities of Diffusion Processes in the Low-Temperature Phases of Neptunium and Plutonium**
E. A. Smirnov, A. A. Shmakov
(Moscow State Engineering Physics Institute [Technical University], Russia)
- 18. Interdiffusion in U–Pu–Zr and U–Zr–Ti Solid Solutions**
O. A. Alexeev¹, A. A. Shmakov², E. A. Smirnov²
(¹All-Russia Scientific Research A. A. Bochvar Institute of Inorganic Materials, Russia, ²Moscow State Engineering Physics Institute [Technical University], Russia)

TRU Waste Forms

19. **Fundamental Research on Patterns of Time Behavior of the Structure and Properties of Plutonium Dioxide Produced by Different Process Arrangements**
L. N. Konovalov, V. A. Zhmak, Ya. N. Chebotarev, A. V. Laushkin, V. Ye. Klepatskiy
(A. A. Bochvar All-Russia Scientific Research Institute of Inorganic Materials, Russia)
20. **A Combinatorial Chemistry Approach to the Investigation of Cerium Oxide and Plutonium Oxide Reactions with Small Molecules**
J. T. Brady, B. P. Warner, J. S. Bridgewater, G. J. Havrilla, D. E. Morris, C. T. Buscher
(Los Alamos National Laboratory)
21. **Destruction of Halogenated Organics with Hydrothermal Processing**
L. A. Worl, S. J. Buelow, D. Harradine, D. Hill, R. McInroy, D. Padilla
(Los Alamos National Laboratory)
22. **Preparation of Plutonium-Bearing Ceramics Via Mechanically Activated Precursor**
S.V. Chizhevskaya, S.V. Stefanovsky
(SIA Radon, Russia)
23. **A Single Material Approach to Nuclear Waste Disposal**
J. V. Beitz and C. W. Williams
(Argonne National Laboratory)
24. **Immobilization Of Pu-Containing Solution Using Porous Crystalline Matrix**
A. S. Aloy, N. V. Sapozhnikova, A.V. Strelnikov, A. G. Anshits, D. A. Knecht, J. Macheret
(Khlopin Radium Institute, Russia)
25. **Immobilization of Pu-Containing Wastes into Glass and Ceramics: Results of US-Russia Collaboration**
E. B. Anderson¹, A. S. Aloy¹, B. E. Burakov¹, L. J. Jardine²
(¹Khlopin Radium Institute, Russia, ²Lawrence Livermore National Laboratory)
26. **Performance Evaluation of Pyrochlore Ceramic Waste Forms by Single Pass Flow Through Testing**
P. Zhao¹, W. L. Bourcier², B. K. Esser², H. F. Shaw²
(¹G. T. Seaborg Institute for Transactinium Science, ²Lawrence Livermore National Laboratory)
27. **Experience of V. G. Khlopin Radium Institute on Synthesis and Investigation of Pu-Doped Ceramics**
B. E. Burakov, E. B. Anderson
(V. G. Khlopin Radium Institute, Russia)
28. **Absorption Spectra of Plutonium in Phosphate and Borosilicate Glasses**
Yu. A. Barbanel, A. S. Aloy, V. V. Kolin, V. P. Kotlin, A.V. Trofimenko
(V. G. Khlopin Radium Institute, Russia)
29. **Microstructure and Thermodynamics of Zirconolite- and Pyrochlore-Dominated Synroc Samples: HRTEM and AEM Investigation**
H. Xu¹, Y. Wang²
(¹The University of New Mexico, ²Sandia National Laboratories)
30. **Electron Microscopy Study of a Radioactive Glass-Bonded Sodalite Ceramic Waste Form**
W. Sinkler, T. P. O'Holleran, T. L. Moschetti
(Argonne National Laboratory)

- 31. Site Preferences of Actinide Cations in [N/ZP] Compounds**
H. T. Hawkins¹, D. R. Spearing¹, D. M. Smith¹, F. G. Hampel¹, D. K. Veirs¹, B. E. Scheetz²
(¹Los Alamos National Laboratory, ²Pennsylvania State University)
- 32. Actinide-Zirconia Based Materials for Nuclear Applications: Cubic Stabilized Zirconia Versus Pyrochlore Oxide**
P. E. Raison¹, R. G. Haire²
(¹Commissariat à l’Energie Atomique, France, ²Oak Ridge National Laboratory)
- 33. Fundamental Aspects of Actinide-Zirconium Pyrochlore Oxides: Systematic Comparison of the Pu, Am, Cm, Bk and Cf Systems**
R. G. Haire¹, P. E. Raison²
(¹Oak Ridge National Laboratory, ²Commissariat à l’Energie Atomique, France)
- 34. Identification of Source Term of Plutonium in the Environment Around WIPP Site**
B. Hooda, C. Ortiz
(Westinghouse)
- 35. Elimination or Reduction of Magnesium Oxide as the Engineered Barrier at the Waste Isolation Pilot Plant**
M. K. Silva
(Environmental Evaluation Group)
- 36. Immobilization of Plutonium-Containing Waste into Borobasalt, Piroxen and Andradite Mineral-Like Compositions**
Yu. I. Matyunin¹, S.V. Yudintsev², L. J. Jardine³
(¹SSC RF VNIINM A.A. Bochvar, Russia, ²IGEM RAS, Russia, ³Lawrence Livermore National Laboratory)
- 37. Technology and Equipment Based on Induction Melters with “Cold” Crucible for Reprocessing Active Metal Waste**
V. G. Pastushkov, A. V. Molchanov, V. P. Serebryakov, T. V. Smelova, I. N. Shestoperov
(SSC RF VNIINM, Russia)
- 38. Handling Liquid Radioactive Wastes That Contain Ammonium Nitrate**
V. P. Varykhanov, B. S. Zakharkin, V. S. Kucherenko, V. V. Revyakin, L. N. Solov’yeva
(A. A. Bochvar All-Russia Scientific Research Institute of Inorganic Materials, Russia)
- 150. Low-Level Waste Management at NMT’s TA-55 and CMR Facilities**
L. A. Trujillo, E. D. McCormick
(Los Alamos National Laboratory)
- 151. Waste Management and Pollution Prevention in NMT**
J. J. Balkey, R. E. Weineke
(Los Alamos National Laboratory)
- 152. Glove Box Vitrification System for TA-55 TRU Waste**
R. Nakaoka, G. Veazey, D. Mullins, C. Smith, J. Klinger
(Los Alamos National Laboratory)
- 39. The Myth of the “Proliferation-Resistant” Closed Nuclear Fuel Cycle**
E. S. Lyman
(Nuclear Control Institute)

- 40. Advanced MOX Fabrication Methods for LWR's**
D. Haas, J. Somers, C. Walker, S. Brémier
(Institute for Transuranium Elements, Germany)
- 41. Synthesis of the U.S. Specified Ceramics using MOX Fuel Production Expertise**
V. A. Astafiev, A. E. Glushenkov, V. M. Sidelnikov, G. B. Borisov, O. A. Mansourov
(A. A. Bochvar All-Purpose Research Institute of Inorganic Materials, Russia)
- 42. Research Program for the 660 MeV Proton Accelerator Driven MOX-Plutonium Subcritical Assembly**
V. S. Barashenkov, V. S. Buttsev, G. L. Buttseva, S. Ju. Dudarev, A. Polanski, I. V. Puzynin, A. N. Sissakian
(Joint Institute for Nuclear Research, Russia)
- 43. Continuous Process of Powder Production for MOX Fuel Fabrication According to "GRANAT" Technology**
V. E. Morkovnikov, L. S. Raginskiy, A. P. Pavlinov, V. A. Chernov, V. V. Revyakin, V. S. Varikhanov, V. N. Revnov
(SSC RF VNIINM, Russia)
- 44. Fabrication Technology and Characteristics of AmO₂-MgO Ceramic Materials for Transmutation**
Y. Croixmaire, A. Mocellin, D. Warin
(Commissariat À l'Energie Atomique, France)
- 45. Analysis Capabilities for Plutonium-238 Programs**
A. S. Wong, G. H. Rinehart, M. H. Reimus, M. E. Pansoy-Hielvik, P. F. Moniz, J. C. Brock, S. E. Ferrara, and S. S. Ramsey
(Los Alamos National Laboratory)
- 46. Modeling of Fission Gas Release in MOX Fuel Considering the Distribution of Pu-rich Particles**
Y. H. Koo, B. H. Lee, D. S. Sohn
(Korea Atomic Energy Research Institute, Korea)
- 47. Comparative Analysis of Basic Process Arrangements for Converting Surplus Weapons Grade Plutonium to MOX Fuel**
V. P. Varykhanov, E. M. Glagovskiy, B. S. Zakharkin, V. V. Revyakin, O. V. Khaustov
(A.A. Bochvar All-Russia Scientific Research Institute of Inorganic Materials, Russia)
- 48. Gallium Behavior in Molten Salt Processes of Plutonium Conversion into Nuclear Fuel**
V. V. Smolensky¹, A. N. Bove¹, A. G. Osipenko², A. V. Bychkov²
(¹IHTE, Russia, ²RIAR, Russia)
- 49. First Experience on Russian Military Origin Plutonium Conversion into Nuclear Fuel**
A. F. Grachev¹, O. V. Bychkov¹, A. A. Mayorshin¹, V. A. Kisly¹, D. A. Bobrov¹, A. G. Osipenko¹, L. G. Babikov¹, A. N. Valeyev¹, V. B. Ivanov²
(¹RIAR, Russia, ²MinAtom, Russia)
- 50. Technical Challenges in Support of the Plutonium Materials Conversion Program in Russia**
C. F. V. Mason, S. J. Zygmunt, W. K. Hahn, C. A. James, D. A. Costa, W. H. Smith, S. L. Yarbrow
(Los Alamos National Laboratory)

- 51. CHEMOX : An Integrated Facility for the Conversion of Russian Weapon-Graded Plutonium into Oxide for MOX Fuel Fabrication**
E. Glagovski¹, Y. Kolotilov², B. Sicard³, F. Josso³, G. Fraize⁴, N. Herlet³, A. Villa⁴, P. Brossard³
(¹A.A. Bochvar, Russia, ²GSPI, Russia, ³CEA, France, ⁴COGEMA, France)
- 52. Radiation-Chemical Behaviour of Plutonium in Solutions DAMP and TOPO in n-dodecane**
D. A. Fedoseev
(SSC A.A.Bochvar All-Russia Research Institute of Inorganic Materials, Russia)
- 53. Dissolution of Phosphate Matrices Based on the Thorium Phosphate Diphosphate**
N. Dacheux¹, A.C. Thomas¹, V. Brandel¹, M. Genet¹, P. Le Coustumer²
(¹Nuclear Physics Institute, France, ²LMGE, France)
- 54. Modelling of Nitric Acid and U(VI) Co-Extraction in Annular Centrifugal Contactors**
E.T. Gaubert¹, M. Jobson¹, J.E. Birkett², I.S. Denniss², I. May³
(¹Department of Process Integration, UK, ²Research and Technology, UK, ³BNFL Radiochemistry Center of Excellence, UK)
- 55. The Measurement of U(VI) and Np(IV) Mass Transfer in a Single Stage Centrifugal Contactor**
I. May¹, E.J. Birkett², I.S. Denniss², E.T. Gaubert³ and M. Jobson³
(¹BNFL Radiochemical Centre of Excellence, UK, ²Research and Technology, BNFL Sellafield, UK, ³Department of Process Integration, UMIST, UK)
- 56. Actinide Chemistry in Room Temperature Ionic Liquids**
D. A. Costa, W. H. Smith, K. D. Abney, W. J. Oldham
(Los Alamos National Laboratory)
- 57. Oxidation of Pu(IV) and Pu(V) with Sodium Hypochlorite**
G. R. Choppin, A. Morgenstern
(Florida State University)
- 58. Contribution of the "Simple Solutions" Concept to Estimate Density of Concentrated Solutions**
C. Sorel, P. Moisy, B. Dinh, P. Blanc
(French Atomic Energy Commission, France)
- 59. Structural Studies of f-Element Complexes with Soft Donor Extractants**
M. P. Jensen, A. H. Bond, K. L. Nash
(Argonne National Laboratory)
- 60. Lewis Base Binding Affinities and Redox Properties of Plutonium Complexes**
S. M. Oldham¹, A. R. Schake¹, C. J. Burns¹, A. N. Morgan III¹, R. C. Schnabel², B. P. Warner¹,
D. A. Costa¹, W. H. Smith¹
(¹Los Alamos National Laboratory, ²Eckerd College)
- 61. QSAR of Distribution Coefficients for Pu(NO₃)₆²⁻ Complexes Using Molecular Mechanics**
E. Moody
(Los Alamos National Laboratory)
- 62. Materials Compatibility for ²³⁸Pu-HNO₃/HF Solution Containment: ²³⁸Pu Aqueous Processing**
M. A. Reimus, M. E. Pansoy-Hjelvik, G. Silver, J. Brock, J. Nixon, K.B. Ramsey, P. Moniz
(Los Alamos National Laboratory)

- 63. Process Parameters Optimization/Nitrate Anion Exchange for Pu-238 Aqueous Processing**
M. E. Pansoy-Hjelvik, J. Nixon, J. Laurinat, J. Brock, G. Silver, M. A. Reimus, K. B. Ramsey
(Los Alamos National Laboratory)
- 64. Plutonium Pyrochemical Salts Oxidation and Distillation Processing: Residue Stabilization and Fundamental Studies**
D. M. Smith, M. P. Neu, E. Garcia, V. R. Dole
(Los Alamos National Laboratory)
- 65. Americium Extraction from Plutonium Metal**
R. F. Watson
(Aldermaston, UK)
- 66. Dry Process for Recovering Gallium from Weapons Plutonium Using a Rotary Furnace Equipped with a Copper Collector**
C. V. Philip¹, R. G. Anthony¹, C. Shivraj¹, E. Philip¹, W. W. Pitt¹, M. Roundhill², C. Beard³.
(Texas A&M University, ²Texas Tech University,³The University of Texas)
- 67. Purification of Plutonium via Electromagnetic Levitation**
J. C. Lashley, M. S. Blau, J. R. Quagliano
(Los Alamos National Laboratory)
- 68. Pu-238 Recovery and Salt Disposition from the Molten Salt Oxidation Process**
M. L. Remerowski, J. J. Stimmel, A. S. Wong, K. B. Ramsey
(Los Alamos National Laboratory)
- 69. Stabilization of ²³⁸Pu-Contaminated Combustible Waste by Molten Salt Oxidation**
J. J. Stimmel¹, M. L. Remerowski¹, K. B. Ramsey¹, J. Mark Heslop²
(¹Los Alamos National Laboratory, ²Naval Surface Warfare Center-Indian Head Division)
- 70. Low Temperature Reaction of Reillex ?? HPQ and Nitric Acid**
W. J. Crooks III, E. A. Kyser III, S. R. Walter
(Westinghouse Savannah River Company)
- 71. Molten Salt Fuels for Treatment Plutonium and Radwastes In Ads and Critical Systems**
V. V. Ignatiev
(RRC–Kurchatov Institute, Russia)
- 72. Robust Membrane Systems for Actinide Separations**
G. D. Jarvinen, T. M. McCleskey, E. A. Bluhm, K. D. Abney, D. S. Ehler, E. Bauer, Q. T. Le, J. S. Young, D. K. Ford, D. R. Pesiri, R. C. Dye, T. W. Robison, B. S. Jorgensen, A. Redondo, L. R. Pratt, S. L. Rempe
(Los Alamos National Laboratory)
- 73. Modeling Hollow Fiber Membrane Separations Using Voronoi Tessellations**
R. Long¹, T. T. Liang¹, J. Rogers¹, S. Yarbrow²
(¹New Mexico State University, ²Los Alamos National Laboratory)
- 74. Identification of Oligomeric Uranyl Complexes Under Highly Alkaline Conditions**
W. V. Konze, D. L. Clark, S. D. Conradson, R. J. Donohoe, J. C. Gordon, P. L. Gordon, D. W. Keogh, D. E. Morris, C. D. Tait
(Los Alamos National Laboratory)

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- 75. Investigation of Conditions of the Process of Dissolving Weapons Grade Plutonium in Mixtures of Nitric and Hydrofluoric Acids**
V. P. Varykhanov, B. S. Zakharkin, V. S. Kucherenko, L. N. Solov'yeva
(A. A. Bochvar All-Russia Scientific Research Institute of Inorganic Materials, Russia)
- 76. Investigation of Radiation-Chemical Behaviour of Plutonium in the Groundwaters and Soils**
D. A. Fedoseev, M. Yo. Dunaeva, M. V. Vladimirova.
(SSCA.A.Bochvar All-Russia Research Institute Of Inorganic Materials, Russia)
- 77. Polymeric Species of Pu in Low Ionic Strength Media**
V. V. Romanovski, C. E. Palmer, H. F. Shaw, W. L. Bourcier, L. J. Jardine
(Lawrence Livermore National Laboratory)
- 78. Solubility and Speciation of Plutonium(VI) Carbonates and Hydroxides**
S. D. Reilly, M. P. Neu, W. Runde
(Los Alamos National Laboratory)
- 79. Plutonium in the Environment: Speciation, Solubility, and the Relevance of Pu(VI)**
W. Runde, D. Efurud, M. P. Neu, S. D. Reilly, C. VanPelt, S. D. Conradson
(Los Alamos National Laboratory)
- 80. Immobilizing U from Solution by Immobilized Sulfate-Reducing Bacteria of *Desulfovibrio Desulfuricans***
H. Xu, L. L. Barton
(The University of New Mexico)
- 81. Interaction of Actinides with Aerobic Soil Bacteria**
P. J. Panak, H. Nitsche
(Glenn T. Seaborg Center, Berkeley)
- 82. Plutonium Uptake by Common Soil Aerobes**
S. John, C. Ruggiero, L. Hersman, M. Neu
(Los Alamos National Laboratory)
- 83. XAS of Uranium(VI) Sorbed onto Silica, Alumina, and Montmorillonite**
E. R. Sylwester, P. G. Allen, E. A. Hudson
(Lawrence Livermore National Laboratory)
- 84. Interactions of Mixed Uranium Oxides with Synthetic Groundwater and Humic Acid Using Batch Methods; Solubility Determinations, Experimentally and Calculated**
D. N. Kurk¹, G. R. Choppin¹, J. D. Navratil^{2,3}
(¹Florida State University, ²Bechtel BWXT Idaho, LLC, INEEL, ³Clemson University-Clemson Research Park)
- 85. Actinide Interactions with Aerobic Soil Microbes and Their Exudates: The Reduction of Plutonium with Desferrioxamine Siderophores**
C. E. Ruggiero, J. H. Matonic, M. P. Neu, S. D. Reilly
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- 86. Interactions of Microbial Exopolymers with Actinides**
M. T. Johnson, D. J. Chitwood, L. He, M. P. Neu
(Los Alamos National Laboratory)

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- 87. The Behaviour of Pu Under Repository Conditions**
J. Bruno¹, E. Cera¹, L. Duro¹, T. Erikssen², U. Eklund³, M. Grivé⁴, K. Spahiu⁴
(¹QuantiSci S.L., Parc Tecnològic del Vallés, Spain, ²Royal Institute of Technology, S-Sweden, ³Studsbruk Nuclear, Sweden, ⁴SKB, Swedish Nuclear Fuel and Waste Management, Sweden)
- 88. Interaction of Plutonium and Uranium with Apatite Mineral Surfaces**
C. E. Van Pelt, M. Lin, D. M. Smith, W. H. Runde
(Los Alamos National Laboratory)
- 89. Equilibrium, Kinetic and Reactive Transport Models for Pu: Employing Numerical Methods to Uncover the Nature of the Intrinsic Colloid**
J. M. Schwantes, B. Batchelor
(Texas A&M University)
- 90. Uncertainty Reporting in Measurements of Plutonium Solution Speciation: How Can We Do Better?**
J. M. Berg, D. K. Veirs
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- 91. Production and Radiometric Measurements of the Large Particle Plutonium Oxide Non-Destructive Assay Standards**
D. L. Thronas, A. S. Wong, S. L. Mecklenburg, R. S. Marshall
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- 92. Analysis of Boron and Silicon in Plutonium Samples by Inductively Coupled Plasma Spectrometry**
B. A. Shepherd, S. L. Bonchin, D. J. Figg
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- 93. Laser Induced Breakdown Spectroscopy (LIBS) Applied to Plutonium Analysis**
C. A. Smith, M. A. Martinez
(Los Alamos National Laboratory)
- 94. Emission from Neptunyl Ions in the Near IR**
H. J. Dewey, T. A. Hopkins
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- 95. Spectroscopy of $\text{UO}_2\text{Cl}_4^{2-}$ in Basic Aluminum Chloride:1-Ethyl-3-methylimidazolium Chloride**
T. A. Hopkins, J. M. Berg, D. A. Costa, W. H. Smith, H. J. Dewey
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- 96. ARIES Nondestructive Assay System Operation and Performance**
T. L. Cremers, W. J. Hansen, G. D. Herrera, D. C. Nelson, T. E. Sampson, N. L. Scheer
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- 97. Peak Asymmetry Understanding in γ Liquid Scintillation with γ Rejection**
J. Aupiais¹, N. Dacheux²
(¹Service Radioanalyses Chimie Environnement, CEA, France, ²Institut de Physique Nucléaire, France)
- 98. A New Method of Alpha Spectrometry Based on Solid-State Nuclear Track Detection: Principles, Performance, Applicability**
O. A. Bondarenko¹, Yu. N. Onishchuk², D. V. Melnichuk¹, S. Yu. Medvedev¹, V. M. Petrishin¹
(¹Radiation Protection Institute, Ukraine, ²Kiev National Taras Shevchenko University, Ukraine)

- 99. Analysis of Aerosol Distribution Inside the Object “Shelter”**
O. A. Bondarenko, P. B. Aryasov, D.V. Melnichuk, S.Yu. Medvedev
(Radiation Protection Institute, Ukraine)
- 100. Ultratrace Analysis of Plutonium in Environmental Samples by Resonance Ionization Mass Spectrometry (RIMS)**
N. Trautmann¹, N. Erdmann¹, C. Grüning¹, G. Huber², J. V. Kratz¹, M. Nunnemann²,
G. Passler², A. Waldek¹
(¹Institut für Kernchemie, Universität Mainz, Germany, ²Institut für Physik, Universität Mainz,
55099 Mainz, Germany)
- 101. Rad Calc III: Radioanalysis Calculation Program for Plutonium and Americium Determination**
J. M. Blackadar, A. S. Wong, N. D. Stalnaker, J. R. Willerton
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- 102. A New Glovebox—Surface Science Facility for the Study of Plutonium Surface Chemistry at AWE**
T. J. Piper, D. S. Shaw, P. Roussel, D. A. Geeson
(Atomic Weapons Establishment, Aldermaston, UK)
- 103. Detection of Leaking Actinide Hexafluoride Storage Cylinders**
J. V. Beitz, C. W. Williams
(Argonne National Laboratory)
- 104. Plutonium Process Monitoring (PPM) System**
A. S. Wong, T. E. Ricketts, M. E. Pansoy-Hejvik, K. B. Ramsey, K. M. Hansel, M. K. Romero
(Los Alamos National Laboratory)
- 105. Determining Analyte Concentrations in Plutonium Metal by X-Ray Fluorescence Using a Dried Residue Method**
C. G. Worley, G. J. Havrilla
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- 106. Comparison of Different Surface Quantitative Analysis Methods: Application to Corium**
N. Guilbaud¹, D. Blin¹, P. Pérodeaud¹, C. Guéneau², O. Dugne¹.
(¹DCC/DTE/SIM-CEA, France, ²DCC/DPE/SPCP-CEA, France)
- 107. Qualification of the Bubble Detector as Neutron Dosemeter at the MOX-Plant of Belgonucleaire.**
P. Kockerols, F. De Smet, A. Vandergheynst
(Belgonucleaire, Belgium)
- 108. Microscopic Determination of the Size Distribution of PuO₂ -Rich Zones and Pores in Mox Pellets with an Image Analysis System**
J. Vandezande, H. Pauwels, A. Vandergheynst
(Belgonucleaire, Belgium)
- 109. Plasmon Resonance Spectroscopy of Plutonium Metal**
R. K. Schulze, J. D. Farr, J. C. Archuleta
(Los Alamos National Laboratory)
- 110. Atomic H(D) Adsorption on Polycrystalline UO₂ and UO₂(111) Surfaces**
M.R. Voss, M.T. Paffett
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- 111. Accelerator Mass Spectrometry Measurements of Actinide Concentrations and Isotope Ratios**
J. E. McAninch, T. F. Hamilton
(Lawrence Livermore National Laboratory)
- 112. Determination of Mercury in Radioactive Samples by Cold Vapor Atomic Fluorescence Spectrometry**
M. N. Jaspersen, L. R. Drake
(Los Alamos National Laboratory)
- 149. Characterization Pu Aerosol in a Recent Release**
Y. S. Cheng¹, M. D. Hoover¹, R. A. Guilmette¹, J. J. Whicker²
(¹Lovelace Respiratory Research Institute, ²Los Alamos National Laboratory)
- 153. Ambient Air Sampling by Los Alamos National Laboratory During the Cerro Grande Fire**
C. Eberhart, J. Dewart, E. Gladney, D. Kraig, M. McNaughton, A. Baumann, J. Martinez, A. Luedeker
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- 113. Single Crystal Growth of (U_{1-x}Pu_x)O₂ Mixed Oxides**
J. Rebizant, E. Bednarczyk, P. Boulet, C. Fuchs, F. Wastin
(European Commission, Joint Research Centre, Institute for Transuranium Elements, Germany)
- 114. Metallofullerenes Encapsulating Actinide Atoms**
H. Nakahara¹, K. Sueki¹, K. Akiyama¹, Y. L. Zhao¹, Y. Nagame², K. Tuskada²
(¹Tokyo Metropolitan University, Japan, ²Japan Atomic Research Institute, Japan)
- 115. Kinetics of the Oxidation of Pu(IV) by Manganese Dioxide**
A. Morgenstern, G. R. Choppin
(Florida State University)
- 116. Calculation of Structural and Thermodynamic Properties of Pu-doped Thorium Phosphate Diphosphate Th_{4-x}Pu_x(PO₄)₄P₂O₇**
C. Meiss
(Commissariat À l'Energie Atomique, France)
- 117. Prediction of Thermodynamic Property of Pu-zircon and Pu-pyrochlore**
H. Xu¹, Y. Wang²
(¹The University of New Mexico, ²Sandia National Laboratories)
- 118. Utilization of Principal Component Analysis on Plutonium EXAFS Data from the Advanced Photon Source**
J. Terry¹, R. K. Schulze¹, T. G. Zocco¹, J. D. Farr¹, J. Archuleta¹, M. Ramos¹, R. Martinez¹, B. Martinez¹, R. Pereya¹, J. Lashley¹, S. Wasserman², M. Antonio², S. Skanthakumar², L. Soderholm²
(¹Los Alamos National Laboratory, ²Argonne National Laboratory)
- 119. Surface Analysis of PuO₂ Powders: Thermal Dehydration/Water Rehydration Studies**
J. D. Farr, R. K. Schulze, M. P. Neu, L. A. Morales
(Los Alamos National Laboratory)
- 120. Important New Insights into f-Electron Behavior via Ultra-High Pressure Studies of Transplutonium Elements**
S. Heathman¹, R. G. Haire², T. Le Bihan³, A. Lindbaum¹, K. Litfin¹, Y. Meresse¹
(¹European Institute for Transuranium Elements, Germany, ²Oak Ridge National Laboratory, ³European Synchrotron Radiation Facility, Grenoble, France)

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121. Synthesis and Structural Studies of Plutonium Complexes Containing Nitrogen and Sulfur Donor Ligands

J. H. Matonic¹, M. P. Neu¹, B. Scott¹, M. Mazzanti²

(¹Los Alamos National Laboratory, ²Laboratoire de Reconnaissance Ionique, CEA-Grenoble)

122. Structures of Plutonium Coordination Compounds: A Review of Past Work, Recent Single Crystal X-Ray Diffraction Results, and What We're Learning About Plutonium Coordination Chemistry

M. P. Neu, J. H. Matonic, D. M. Smith, B. L. Scott

(Los Alamos National Laboratory)

123. Steric vs. Electronic Effects in Binary Uranyl Alkoxides: A Spectroscopic Perspective

M. P. Wilkerson, C. J. Burns, D. E. Morris, R. T. Paine, B. L. Scott

(Los Alamos National Laboratory)

124. Structural Preferences and Reactivity of Uranyl Alkoxide Complexes Prepared in Non-Protic Media

M. P. Wilkerson^{1,2}, C. J. Burns¹, D. E. Morris¹, R. T. Paine², B. L. Scott¹

(¹Los Alamos National Laboratory, ²The University of New Mexico)

125. Characterization of Uranium Compounds After a Fire Ignition

D. Labroche, D. Pisson, P. Ramel, O. Dugne

(Commissariat À l'Energie Atomique CEA/Valrho, France)

126. Solid State Chalcophosphate Compounds of Actinide Elements

P. M. Briggs Piccoli¹, R. F. Hess², K. D. Abney², J. R. Schoonover², P. K. Dorhout^{1,2}

(¹Colorado State University, ²Los Alamos National Laboratory)

127. Thermodynamic and Structural Characterisation of the UFeO₄ Compound

D. Labroche, D. Pisson, P. Ramel, O. Dugne

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128. Thermodynamic Properties of Pu³⁺ and Pu⁴⁺ AquoIons

F. David, J. Purans, B. Fourest, S. Hubert, V. Vokhmin, C. Madic

(IPN, Orsay, France, University of Riga, Lettonia, Ins. Phys. Chem. Russia, CEA Marcoule, France)

129. Modeling the Thermodynamic Properties of Plutonium

M. Stan

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130. Theoretical Studies of Actinyl Crown Ether Inclusion Complexes

R. L. Martin, P. J. Hay, G. Schreckenbach

(Los Alamos National Laboratory)

131. Non-Aqueous Chemistry of Uranyl Complexes with Tripodal Ligands

C. J. Burns, D. L. Clark, P. B. Duval, B. L. Scott

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132. Organoactinides—New Type of Catalysts for Carbon-Carbon, Carbon-Nitrogen, and Carbon-Silicon Bond Formation

M. S. Eisen

(Israel Institute of Technology, Israel)

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- 133. A Novel Equation for Predicting Stability Constants of Aqueous Metal Complexes and Actinide Binding to Protein**
H. Xu¹, Y. Wang²
(¹The University of New Mexico, ²Sandia National Laboratories)
- 134. Radiation Effects in Uranium-Niobium Titanates**
J. Lian, S. X. Wang, L. M. Wang, R. C. Ewing
(Department of Nuclear Engineering and Radiological Sciences, University of Michigan)
- 148. Catechols and Hydroxypridinones in Actinide Chemistry**
D. Van Horn, C. Gramer, J. Xu, K. N. Raymond
(University of California, Berkeley)
- 135. Electronic and Geometric Structure of Pu Metal: A High-Resolution Photo-electron Spectromicroscopy Study**
J. Terry¹, R. K. Schulze¹, T. Zocco¹, J. Lashley¹, J. D. Farr¹, K. Heinzelman², E. Rotenberg², D. K. Shuh², M. Blau³, J. Tobin³
(¹Los Alamos National Laboratory, ²Ernest Orlando Lawrence Berkeley National Laboratory, ³Lawrence Livermore National Laboratory)
- 136. Preliminary Study of (Pu_{1-x}AM_x) Solid Solutions**
F. Wastin¹, E. Gomez-Marin¹, D. Bouexiere¹, J. C. Spirlet¹, and J. M. Fournier²
(¹European Commission, Joint Research Centre, Institute for Transuranium Elements, Germany, ²Université Joseph Fourier, Laboratoire LIME, France)
- 137. Actinide Electronic Structure and Atomic Forces**
R. C. Albers¹, S. P. Rudin¹, D. R. Trinkle¹, M. D. Jones²
(¹Los Alamos National Laboratory, ²SUNY Buffalo)
- 138. Determination of Mechanical Properties of Aged Plutonium from ARIES Pits by Instrumented Sharp Indentation**
T. Huntley, K. Johnson, D. Olivas, R. Mulford, W. Brown, K. Walter, M. Stout
(Los Alamos National Laboratory)
- 139. Density of Plutonium Metal as a Function of Age**
R. N. Mulford, M. Valdez
(Los Alamos National Laboratory)
- 140. Electronic Structure of Elements and Compounds and Electronic Phases of Solids**
B. A. Nadykto
(RFNC-VNIIEF, Russia)
- 141. 5f Band Dispersion in the Highly Correlated Electronic Structure of Uranium Compounds**
D. P. Moore, J. J. Joyce, A. J. Arko, L. Morales, J. Sarrao
(Los Alamos National Laboratory)
- 142. All-Electron Density Functional Theory Calculations of the Zero-Pressure Properties of Plutonium Dioxide**
J. C. Boettger¹, A. K. Ray²
(¹Los Alamos National Laboratory, ²Department of Physics, University of Texas)

143. Predictions of Plutonium Alloy Phase Stability using Electronic Properties

D. L. Olson, G. R. Edwards, D. E. Dooley
(Colorado School of Mines)

144. Structural Stability in High Temperature Pu and Pu Alloys

John Wills¹, Olof R. Eriksson², Heinrich Roder¹
(¹Los Alamos National Laboratory, ²Uppsala University, Sweden)

145. Diffusion of Helium in Plutonium Alloys

D. Dooley, B. Martinez, D. Olson, D. Olivas, R. Ronquillo, T. Rising
(Los Alamos National Laboratory)

146. Effects of Self-Irradiation Damage on Physical Properties of Stabilized Pu Alloys

F. Freibert, B. Martinez, J. P. Baiardo, J. D. Olivas, R. Ronquillo
(Los Alamos National Laboratory)

147. Large Thermal Softening of the Phonon Density of States of Uranium

M. E. Manley,^{1,2} B. Fultz¹, R.J. McQueeney², C. Brown³, W. L. Hulst², J. L. Smith²
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