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John Joyce, Tomasz Durakiewicz, Kevin Graham (LANL)

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S. Georgette, S. Picart, C. Bouyer, J. Maurin, L. Venault, I. Bisel, S. Grandjean (CEA), J. Deseure (LEPMI, UMR), F. Lapicque (LRGP, UPR)

342Experimental and Computational Analysis of Nuclear Physics Properties of Assemblies Containing ^{237}Np and ^{235}U(36%) in the Core and a Duralumin Reflector

A. A. Kaigorodov, E. A. Gumennykh, A. A. Devyatkin, I. Yu. Drozdov, N. V. Zavialov, M. I. Kuvshinov, A. V. Panin, S. V. Finogeev, V. Kh. Khoruzhiy (RFNC-VNIIEF)

THURSDAY, SEPTEMBER 11, 2014, 8:00-9:00 A.M.

THURSDAY PLENARY SESSION

Session Chair: David Hobart (LANL retired)

345Analytical Techniques for Plutonium in Nuclear Safeguards and Nuclear Security Applications

Klaus Luetzenkirchen, Klaus Mayer (Inst for Transuranium Elements), plenary

THURSDAY, SEPTEMBER 11, 9:00-10:00A.M.

DETECTION AND ANALYSIS—I

Session Chair: Melissa Denecke (University of Manchester)

347Small Scale Plutonium Analysis

Pamela Thompson (AWE),invited

351Plutonium Detection with Straw Neutron Detectors

Sanjoy Mukhopadhyay, Richard Maurer (NSTec), Paul Guss (Remote Sensing Lab-Nellis)

SURFACE SCIENCE AND CORROSION—I

Session Chair: Art Nelson (LLNL)

353The Study of Reaction of δ-Plutonium Surface with Water Vapor

Xinchun Lai, Xiaoguo Fu, Yongqiang Zhong(China Academy of Engineering Physics)

355The Room Temperature Oxidation/Corrosion of δ-Pu: Historical Perspective vs. Modern Understanding

David L. Pugmire (LANL), Harry G. Garcia Flores (SRNL), invited

THURSDAY, SEPTEMBER 11, 2014, 10:20 A.M.-12:00 P.M.

DETECTION AND ANALYSIS—II

Session Chair: Dominic Peterson (LANL)

358Advanced X-Ray Imaging of Uranium Distribution in Biological Samples

Manuel Sturzbecher-Hoehne, Abdelmoula Haboub, Kathleen A. Bjornstad, Dahlia D. An, Albert Thompson, Alastair A. MacDowell, Rebecca J. Abergel (LBNL)

360Overview on Plutonium Particle Analysis

Mats Eriksson (Swedish Radiation Safety Authority), invited

362Experimental and Theoretical Aspects of Nuclear Magnetic Resonance Spectroscopy of Pu Compounds

H. Cho (PNNL), E. Bauer, D. Clark, S. Kozimor, A. Mounce, H. Yasuoka (LANL), K. Mueller, J. Sears, N. Washton (PNNL), invited

SURFACE SCIENCE AND CORROSION—II

Session Chair: David Moore (LANL)

364The Microstructure of Plutonium Hydride Reaction Sites

Martin Brierley, John Knowles, Gordon McGillivray (AWE)

366Plutonium Hydriding: Hydrogen Transport, Chemistry, and Reaction Front Morphology

L. N. Dinh, S. K. McCall, C. K. Saw, J. M. Haschke, P. G. Allen, W. McLean II (LLNL), invited

368The Roles of Pu-Oxide Overlayers in Surface Corrosion of Pu-Metal: A View from Ab Initio Molecular Dynamics

Bo Sun, Hai-Feng Liu, Hai-Feng Song, Ping Zhang (Inst of Applied Physicsand Computational Mathematics), invited

THURSDAY, SEPTEMBER 11, 2014, 1:00-3:00 P.M.

DETECTION AND ANALYSIS—III

Session Chair: Kiel Holliday (LLNL)

370Safeguarding Nuclear Materials and Countering Nuclear Terrorism

Marion D. Moxley, William W. Terry, Vahid Majidi, (Department of Defense), invited

371Application of Focused Ion Beam (FIB) to Nuclear Forensics

Brandon W. Chung, Robert G. Erler (LLNL)

373High-Selective Chemiluminescence Initiated by Multi-Step Laser-Induced Excitation of Actinide and Lanthanide Ions in Solutions

I. N. Izosimov (Joint Inst for Nuclear Research), N. G. Firsin, N. G. Gorshkov, S. N. Nekhoroshkov (Khlopin Radium Inst)

375Present Status of Pu-238 Determination by Mass Spectrometry and Radiometry

Suresh K. Aggarwal (BARC)

377Plutonium Speciation Influence on the ^{22}NaYield from the^{19}F[α,n] Reaction

William M. Kerlin (UNLV), John D. Despotopulos (UNLV/LLNL), Dallas D. Reilly (PNNL), Ralf Sudowe, Kenneth R. Czerwinski (UNLV)

THURSDAY, SEPTEMBER 11, 2014, 1:00-2:20 P.M.

SURFACE SCIENCE AND CORROSION—III

Session Chair: Robert Hanrahan (NNSA)

379Oxygen Vacancies in PuO_2 (110) Surfaces via Density Functional Theory

Edward F. Holby (LANL)

381Adsorption of Water on Plutonium Dioxide Powder

Robin M. Orr, Robin J. Taylor, Howard E. Sims, Kevin J. Webb, David A. Woodhead (NNL), Paul M A. Cook, Jeff W. Hobbs (Sellafield Ltd.)

383The Adsorption of CO_2, H_2O and CO_2-H_2O on Plutonium Dioxide

Xiaolin Wang, Gan Li, Junbo Lv (China Academy of Engineering Physics)

385Nuclear Waste Viewed in a New Light

C. A. Stitt, T. B. Scott (Univ of Bristol)

THURSDAY, SEPTEMBER 11, 2014, 2:20-3:00 P.M.

JOINT METALLURGY AND MATERIALS SCIENCE/CONDENSED MATTER PHYSICS—I

Session Chair: Franz Freibert (LANL)

387Local Structure in Plutonium and Plutonium Intermetallics Damaged by Self-Irradiation

C. H. Booth, Yu Jiang, S. A. Medling, D. Olive, D. L. Wang (LBNL), A. L. Pugmire, D. S. Schwartz, J. N. Mitchell, P. H. Tobash, E. D. Bauer (LANL), S. K. McCall, M. A. Wall, P. G. Allen (LLNL)

THURSDAY, SEPTEMBER 11, 2014, 3:20-5:00 P.M.

NUCLEAR FUEL CYCLE—IV

Session Chair: P. K. Mohapatra (BARC)

388Overview of the CEA's R&D Dedicated to the Treatment/Recycling of Pu-Based Fuels (Towards PuMulti-Recycling)

Stephane Grandjean, Nathalie Reynier-Tronche, Andrea Salvatores, Nathalie Herlet, Xavier Heres, Jean-Philippe Dancausse, Michel Masson, Christophe Poinssot, Laurent Paret, Dominique Warin, Bernard Boullis (CEA), invited

392Oxygen Self-Diffusion in Polycrystalline $(U_{0.55}Pu_{0.45})O_2$Mixed Oxide

Romain Vauchy, Anne-Charlotte Robisson, Philippe Bienvenu, Ingrid Roure (CEA, DEN, DEC), Fiqiri Hodaj (SIMAP,UJF/INP), Philippe Garcia (CEA, DEN, DEC)

394Particle Size as a Function of Age in ^{238}Plutonium Oxide

Roberta N. Mulford (LANL)

397Diffusion Studies of U-Zr Alloys with HT-9 Stainless Steel at 700 C

Daniel Koury, Ken Czerwinksi, Andrew J. Swift (UNLV), Morgan Luckey (Harvey Mud College)

JOINT METALLURGY AND MATERIALS SCIENCE/CONDENSEDMATTER PHYSICS—II

Session Chair: Brandon Chung (LLNL)

Growth and Characterization of Poly- and Single-Crystal Uranium-Alloy Thin Films

A. M. Adamska, T. B. Scott, R. Springell, A. D. Warren, L. Pico, O. Payton (Univ of Bristol)

401The Phase Stability of Actinide Alloys: An *ab Initio* Aided CALPHAD Study

A. Perron, P. E. A. Turchi, A. Landa, P. Söderlind (LLNL), B. Oudot, B. Ravat, F. Delaunay (CEA-Centre de Valduc), invited

405Phase Equilibria in the Uranium-Plutonium-Oxygen System

Renaud C. Belin, Michal Strach, Christine Guéneau, Thibaut Truphemus, Romain Vauchy, Jean-Christophe Richaud (CEA), Jacques Rogez (IM2NP, UMR 6122, CNRS), invited