ATALANTE 2024
nuclear chemistry for sustainable fuel cycles

cea isec

# ATALANTE 2024 – CONFERENCE PROGRAM

| TOPICS | | MONDAY SEPT. 2 | | TUESDAY SEPT. 3 | | WEDNESDAY SEPT. 4 | | THURSDAY SEPT. 5 | |
|---|---|---|---|---|---|---|---|---|---|
| | 8:00 | | | CONFERENCE REGISTRATION – SALLE DES GARDES | | | | | |
| SALLE DU CONCLAVE | 9:00 | OPENING CEREMON<br>*Salle du Conclave* | | **C. SOREL** | **S. WATANABE** | **I. SANCHEZ-GARCIA** | **A. LINES** | **N. CLAVIER** | **G. HOLMBECK** |
| ACTINIDE AND FISSION PRODUCTS SEPARATION | 9:30 | C. HILL (IAEA) | | A. GELIS | H. DANIS | A. GEIST | F. LAMADIE | S. KELLY | Q. HERVY |
| ACTINIDE MATERIALS AND NUCLEAR FUELS | 10:10 | F. SUDREAU (CEA) | | C. MAHER | S. OHNO | T. CATALDO | S. BRYAN | P. ESTEVENON | J. MCLACHLAN |
| CELLIER BENOIT XII | | | | E. DEL RIO | R. LAFLOTTE | Y. SANO | A. SANCHEZ HERNANDEZ | G. THOROGOOD | J. MARGATE |
| WASTE CONDITIONING AND GEOLOGICAL REPOSITORY | 10:50 | coffee break | | coffee break | | coffee break | | coffee break | |
| SAFEGUARDS AND ANALYTICAL CHEMISTRY | 11:30 | S. KUNG (DOE) | | **A. WILDEN** | **L. CAMPAYO** | **R. TAYLOR** | **S. PICART** | **E. DE VISSER TYNOVA** | **K. TAKAO** |
| PYROCHEMISTRY AND MOLTEN SALTS | 12:10 | P. NEVITT (NNL) | | V. VANEL | L. BLACKBURN | T. OKAMURA | S. POTTS | R. CAPRANI | E. ARCHER |
| ACTINIDE AND FISSION PRODUCTS CHEMISTRY | 12:50 | Lunch | | E. MACERATA | O. DAUTAIN | A. HOLDSWORTH | P. ZSABKA | J. MANAUD | D. MORENO MARTINEZ |
| | 14:20 | **K. MARSDEN** | **M. GUILPAIN** | F. KOLESAR | N. YAW | P. TKAC | H. CHO | L. DESGRANGES | T. SITTEL |
| | 14:50 | G. GARZON LOSIK | C. CHABAL | F. SAUERWEIN | N. DESCHANELS | N. GOLLES | R. BES | C. D'ANGELO | M. GOUJET |
| | 15:10 | C. MICHEAU | M. PINEDA | 12:30 Lunch | | 12:30 Lunch | | 12:30 Lunch | |
| SUNDAY SEPT. 1 | 15:30 | coffee break | | **L. DELMAU** | **A. H. MIR** | **O. WALTER** | **G. BOURGES** | **R. HARRISON** | **H.-C. ZUR LOYE** |
| | 16:10 | **S. JANSONE POPOVA** | **C. THORPE** | A. MASMOUDI | P. DE LAHARPE | T. GENEVES | A. HANDSCHUH | P. BERENGUER | R. ONO |
| 16:00 CONFERENCE REGISTRATION | 16:40 | T. BLANC | N. DACHEUX | M. NAKASE | D. SHIROKIY | G. MURPHY | J. CONSTANTINE | S. FINKELDEI | J. TURNER |
| SALLE DES GARDES | 17:00 | R. TASHIRO | A. FRISKNEY | J. GOGOLSKI | H. ARENA | L. CLAPAREDE | P. CHAMELOT | S. SZENKNECT | P. MARTIN |
| | 17:20 | D. MAERTENS | M. TARON | coffee break | | coffee break | | E. KINDALL | J. TANG |
| | 17:40 | | | **G. HALL** | **S. HOLGERSSON** | **X. GUO** | **M. EDMONSON** | coffee break | |
| 18:00 WELCOME COCKTAIL 20:00 | 18:00 | | | C. MARIE | D. PAN | T. WISS | P. CHEVREUX | **CLOSING LECTURE**<br>*Salle du Conclave*<br>**E. PROUST (CEA)**<br>**CLOSING CEREMONY** | |
| GRANDE AUDIENCE | | | | T. SHAW | I. CARDIAO | L. MULLER | J. JACKSON | | |
| | | | | | | A. DE AZEVEDO | T. CARETERO | | |
| | | | | 18:30 **POSTER SESSION BUFFET**<br>*Grande Audience*<br>23:00 | | 19:00 **CONFERENCE DINNER**<br>23:30 | | | |

# MONDAY SEPT. 2

## SALLE DU CONCLAVE

| | |
|---|---|
| **9:00** | **OPENING CEREMONY** |
| | Chairpersons: **Florence Bart & Fabien Frizon** |
| 9:30 **Plenary** | **Clément Hill (IAEA)** *Global Overview on the Nuclear Fuel Cycle Backend and IAEA Related Activities* |
| 10:10 **Plenary** | **François Sudreau (CEA)** *Status of The French Nuclear Fuel Cycle Program* |
| 10:30 | Coffee break – **GRANDE AUDIENCE** |
| **11:30 Plenary** | **Stephen Kung (DOE)** *Nuclear Fuel Recycle Activities in the Office of Nuclear Energy* |
| 12:10 **Plenary** | **Paul Nevitt (NNL)** *Future Fuel Cycles – a UK Perspective* |
| 12:50 | Lunch – **GRANDE AUDIENCE** |

## TECHNICAL SESSIONS

| | SALLE DU CONCLAVE | CELLIER BENOIT XII |
|---|---|---|
| | **ACTINIDE AND FISSION PRODUCTS SEPARATION** | **WASTE CONDITIONING AND GEOLOGICAL REPOSITORY** |
| | Chairpersons: **Andreas Geist & Cécile Marie** | Chairpersons: **Thierry Wiss & Lionel Campayo** |
| **14:20 Keynote** | **Kenneth C Marsden (INL):** *Overview of the Material Recovery and Waste Form Development Program* | **Mathilde Guilpain (ORANO):** *REGAIN project – Recycling of Zirconium from Nuclear Hulls* |
| 14:50 | **German Garzon Losik (CEA)**: *Lab-scale pulsed columns trials for a new nuclear fuel recycling process* | **Caroline Chabal (CEA):** *Successful lasergrammetry operation in an ATALANTE hot cell: first step for deploying digital technologies on hot cells in operation* |
| 15:10 | **Cyril Micheau (JAEA):** *Potential of aggregation control for solvent extraction separation* | **Miguel Pineda (University College London):** *Effects of radiolysis products and acidic media on the aggregation behaviour of nuclear fuel debris nanoparticle simulants via stochastic simulations* |
| 15:30 | Coffee break – **GRANDE AUDIENCE** | |
| **16:10 Keynote** | **Jansone Popova (ORNL):** *Evolution of Uranium Recovery: Past, Present, and Future Perspectives* | **Clare Thorpe (University of Sheffield):** *Insights into glass alteration mechanisms from the study of long term burial experiments* |
| 16:40 | **Thibau Blanc (CEA)**: *Experimental and modeling study of uranium(VI) and nitric acid extraction with a N,N-dialkylamide solvent* | **Nicolas Dacheux (ICSM):** *Impact of lanthanide and PGM elements on the chemical durability and surface modifications during the leaching tests of FP doped pellets mimicking interim repository* |
| 17:00 | **Ririka Tashiro (Tokyo institute of technology)**: *Feasibility Study on PUREX-NUMAP Hybrid Reprocessing: Precipitation-Based Recovery of U(VI) from Organic Phases with 30% TBP* | **Aidan Friskney (University of Sheffield):** *The impact of hot isostatic pressing on U speciation and local coordination in simulant Pu ceramic wasteforms* |
| 17:20 | **Dominic Maertens (SCK CEN)**: *Demonstration of U(VI)/Pu(IV) separation by solvent extraction in modified lab-scale annular centrifugal contactors using D2EHiBA extractant* | **Mélanie Taron (CEA):** *Impact of gamma dose rate on the alteration of nuclear glass in geological disposal conditions* |

## SALLE DU CONCLAVE — TUESDAY SEPT. 3 — CELLIER BENOIT XII

| | ACTINIDE AND FISSION PRODUCTS SEPARATION | WASTE CONDITIONING AND GEOLOGICAL REPOSITORY |
|---|---|---|
| | Chairpersons : **Santa Jansone Popova & Manuel Miguirditchian** | Chairpersons: **Anamul Haq Mir & Céline Cau Dit Coumes** |
| **8:30 Keynote** | **Bénédicte Arab-Chapelet, Christian Sorel (CEA):** *Current TRL status and strategy for the development of the next generation of reprocessing plant* | **Sou Watanabe (JAEA):** *Low-temperature condensation and solidification of radioactive liquid waste by freeze-drying* |
| 9:00 | **Artem Gelis (University of Nevada):** *Towards a Single-Solvent Process for U/TRU Recovery and Minor Actinide/Lanthanide Separations: Speciation and Partitioning of Tetravalent (Th, Pu) and Hexavalent (U) Actinides with HEH[EHP] and T2EHDGA* | **Hugo Danis (CEA):** *Investigation of cement-based materials with dihydrogen sequestration properties* |
| 9:20 | **Chris Maher (NNL):** *Horizon 2020 PuMMA: Studies considering reprocessing of 40 45 %Pu Fast reactor MOx* | **Shimpei Ohno (JAEA):** *Microwave plasma-assisted combustion of waste organic solvents* |
| 9:40 | **Emma Del Rio (Universidad Politécnica de Madrid):** *First-principles study of a new TODGA degradation compound* | **Richard Laflotte (CEA):** *Search for a cement matrix for ITER beryllium radwaste conditioning* |
| 10:00 | Coffee break – GRANDE AUDIENCE | |
| **10:40 Keynote** | **Andreas Wilden (FZ Jülich):** *Demonstration of the Single Cycle Am(III) Separation AmSEL Process in Laboratory-scale Annular Centrifugal Contactors* | **Lionel Campayo (CEA):** *Repercussions of solubility for the conditioning of fission products and minor actinides in borosilicate glasses* |
| 11:10 | **Vincent Vanel (CEA):** *Flowsheets for the validation of the reference AmSEL system* | **Lewis Blackburn (University of Sheffield):** *Progress Towards the Immobilisation of the UK Plutonium Inventory in Titanate Ceramics* |
| 11:30 | **Elena Macerata (Politecnico di Milano):** *Novel water-soluble and CHON-compliant ligands for selective Americium Separation from PUREX raffinate* | **Olivier Dautain (CIRIMAT):** *Elaboration and characterization of iodate and/or carbonate-doped apatites for long-lived radionuclides conditioning* |
| 11:50 | **Filip Kolesar (SCK CEN):** *Extraction and speciation studies of new diglycolamides with varying alkyl chains for selective americium partitioning* | **Natalie Yaw (WSU):** *The effect of cation substation and valency on formation energetics of brannerite ceramics for nuclear waste applications* |
| 12:10 | **Fynn S. Sauerwein (FZJ Jülich)** : *Selective Americium separation: New insights into the complexation of $SO_3$-Ph-BTBP with trivalent f-elements* | **Xavier Deschanels (ICSM):** *Densification of mesoporous silicas induced by radiation damage - New perspectives for the treatment of radioactive effluents* |
| 12:30 | Lunch – GRANDE AUDIENCE | |
| | **ACTINIDE AND FISSION PRODUCTS SEPARATION** | **WASTE CONDITIONING AND GEOLOGICAL REPOSITORY** |
| | Chairpersons: **Elena Macerata & Laurence Berthon** | Chairpersons: **Clare Thorpe & Nicolas Dacheux** |
| **14:00 Keynote** | **Laetitia H. Delmau (ORNL):** *Purification of Neptunium and Plutonium by Ion Exchange for Plutonium-238 Production at Oak Ridge National Laboratory* | **Anamul Haq Mir (University of Huddersfield):** *A Historical Overview of Corroded Microstructures and Present-day Best Practices* |
| 14:30 | **Abderrazak Masmoudi (CEA):** *Experimental Studies and Molecular Modeling of the Physico-chemical Properties of Pure Monoamides Extractants* | **Pierre de Laharpe (ICSM):** *Compared radiation stability of mesoporous silica and nuclear glass alteration gels* |
| 14:50 | **Masahiko Nakase (Tokyo Institute of Technology):** *Development of integrated actinide chemistry application, AACE, for acceleration of actinide chemistry experiments* | **Daniil Shirokiy (FZJ):** *Insights into the Structural and Redox Chemistry of Cr-doped $(Ln,U)O_2$ Materials* |
| 15:10 | **Jarrod M. Gogolski (SRNL):** *Actinide Oxide Dissolution in Tributyl Phosphate* | **Hélène Arena (CEA):** *Simulating auto-irradiation of glass using external irradiation beams: impact on glasses structure and properties* |
| 15:30 | Coffee break – GRANDE AUDIENCE | |
| **16:10 Keynote** | **Gabriel B. Hall (PNNL):** *Direct Extraction of Uranium from Used Nuclear Fuel with DEHiBA* | **Stellan Holgersson (Chalmers University of Technology):** *The influence of pH, ionic strength and temperature on Cs, Ba, Co, and Eu sorption on biotite - experiments and modelling* |
| 16:40 | **Cécile Marie (CEA):** *New monoamide based extractants for U(VI) and Pu(IV) efficient separation* | **Duoqiang Pan (Lanzhou University):** *Colloids Pose an Enhanced Transport Risk of Uranium in Saturated Porous Media: A Challenge for Immobilization Remediation of Uranium Contaminated Site* |
| 17:00 | **Tom Shaw (University of Leeds):** *Efficient Manufacture of DEHiBA Through Industry 4.0* | **Irene Cardaio (HZDR):** *Processes driven by iron reducing bacteria on technetium immobilization* |
| **18:30** | **POSTER SESSION & BUFFET - GRANDE AUDIENCE** | |

## SALLE DU CONCLAVE — WEDNESDAY SEPT. 4 — CELLIER BENOIT XII

| | ACTINIDE AND FISSION PRODUCTS SEPARATION | SAFEGUARDS AND ANALYTICAL CHEMISTRY |
|---|---|---|
| | Chairpersons: **Gabriel Hall & Christian Sorel** | Chairpersons: **Karen Wright & Cédric Rivier** |
| **8:30 Keynote** | **Ivan Sanchez-Garcia (CIEMAT):** *Interinstitutional Study of the New EURO-GANEX Process Resistance by Gamma Irradiation Test Loops* | **Amanda Lines (PNNL):** *Real-time and automated process control via on-line monitoring* |
| 9:00 | **Andreas Geist (KIT INE):** *Americium Separation Processes Developed within the European PATRICIA Project* | **Fabrice Lamadie (CEA):** *Photonic lab-on-a-chip, a versatile and powerful tool for R&D studies on spent fuel reprocessing* |
| 9:20 | **Taren Cataldo (University of New South Wales)** *Radiolytic stability of metal (IV) phosphonate sorbents designed for minor actinide-lanthanide separations* | **Samuel Bryan (PNNL):** *Real-Time Solution Analysis in Microfluidic Devices using Optical Spectroscopy* |
| 9:40 | **Yuichi Sano (JAEA):** *Optimization of Minor Actinides Recovery Conditions by Combining Mathematical Analysis and Process Simulation* | **Ana Maria Sanchez Hernandez (JRC):** *The Joint Research Centre's Expertise in Nuclear Safeguards Sample Analysis* |
| 10:00 | Coffee break – GRANDE AUDIENCE | |
| **10:40 Keynote** | **Robin Taylor (NNL):** *Recent results from lab scale testing of advanced aqueous separation processes for the future recycling of spent nuclear fuels* | **Sebastien Picart (CEA):** *A New Plutonium Metal Certified Reference Material at CETAMA: the MP4 Standard* |
| 11:10 | **Tomohiro Okamura (Tokyo Institute of Technology):** *Research on Sustainable Nuclear Energy Use with Actinide Management: Scenario Study on High-Level Waste Generation with MA Separation and Intermediate Storage Technology Implementation* | **Shannon Potts (FZJ):** *Development of Uranium Oxide-based Reference Microparticles for Particle Analysis in Nuclear Safeguards* |
| 11:30 | **Alistair F. Holdsworth (University of Manchester):** *Recovery of Strategic High-Value Fission Products from Spent Nuclear Fuel during Reprocessing* | **Peter Zsabka (Studsvik Nuclear AB):** *Laser ablation- ICP-MS method development for a self-consistent calibration in Post Irradiation Examination of Spent Fuels* |
| 11:50 | **Peter Tkac (ANL):** *Demonstration of Advanced Voloxidation and Direct Extraction Using Irradiated $UO_2$* | **Hyejin Cho (KAERI):** *Burnup Determination of Irradiated U-Mo Alloy Fuel by $^{148}$Nd Monitor Method* |
| 12:10 | **Nicolas Golles (ORANO):** *Zirconium Molybdate rinsing with carbonate: from R&D to industrialization in the La Hague plants* | **René Bes (University of Helsinki):** *On L-edges X-ray emission spectroscopy as a tool to study actinide's electronic structure: the case of Uranium in $U_xO_y$ compounds* |
| 12:30 | Lunch – GRANDE AUDIENCE | |
| | **ACTINIDE MATERIALS AND NUCLEAR FUELS** | **PYROCHEMISTRY AND CHEMISTRY FOR MOLTEN SALTS** |
| | Chairpersons: **Gordon Thorogood & Sophie Charton** | Chairpersons: **Jessica Jackson & Michael Edmonson** |
| **14:00 Keynote** | **Olaf Walter (JRC):** *The potentials of nano-scaled Actinide dioxides* | **Gilles Bourgès (CEA):** *Overview of Plutonium pyroprocessing by-products management* |
| 14:30 | **Thomas Genevès (ORANO):** *Influence of uranium oxide nature on MOX fuel fabrication process* | **Alan Handschuh (NAAREA):** *Spent Fuel Reprocessing for molten salts fast neutron reactors* |
| 14:50 | **Gabriel Murphy (FZJ):** *New Insights in the Structural-Redox Chemistry of Cr, Mn, Fe and V doped-UO2 Nuclear Fuel Materials* | **Joelle Costantine (IJCLab):** *Pyrochemical treatment for molten salt nuclear reactor* |
| 15:10 | **Laurent Claparede (ICSM):** *ESEM-monitored dissolution of $(U,Th)O_2$ heterogeneous mixed oxides for spent fuel modeling* | **Pierre Chamelot (CNRS):** *Feasibility of lanthanide extraction assisted by electrolysis on Li-Bi liquid cathode in molten fluorides* |
| 15:30 | Coffee break – GRANDE AUDIENCE | |
| | | Chairpersons: **Sylvie Delpech & Jérôme Serp** |
| **16:10 Keynote** | **Xiaofeng Guo (WSU):** *Defect Chemistry, Thermal Oxidation, and Thermodynamics of metal-doped $UO_2$* | **Michael Edmonson (NNL):** *Molten Salts and Pyrochemical Processing Progress at the UK's National Nuclear Laboratory* |
| 16:40 | **Thierry Wiss (JRC):** *Heat capacity measurements of self-damaged mixed actinide oxides: a method to assess defects in spent fuels* | **Pierrick Chevreux (CEA):** *Synthesis of actinide chlorides as fuel for fast molten salt reactor* |
| 17:00 | **Lucas Muller (CEA):** *Conversion of U(VI) and Pu(IV) by peroxide precipitation and hydrothermal treatment* | **Jessica Jackson (Colorado School of Mines):** *Molten Salt Spectroelectrochemistry in Chloride Based Eutectic Systems with Uranium* |
| 17:20 | **Antonin De Azevedo (CEA):** *Densification study of Cr-doped $UO_2$ fuel pellets with addition of fission products surrogates* | **Théo Caretero (CNRS):** *Influence of nitrogen on uranium metal stability in molten LiCl-KCl* |
| **19:00** | **CONFERENCE DINER** | |

## SALLE DU CONCLAVE — THURSDAY SEPT. 5 — CELLIER BENOIT XII

| | ACTINIDE MATERIALS AND NUCLEAR FUELS | ACTINIDE AND FISSION PRODUCTS CHEMISTRY |
|---|---|---|
| | Chairpersons: **Xiaofeng Guo & Stéphanie Szenknect** | Chairpersons: **Hans-Conrad Zur Loye & Dominique Guillaumont** |
| **8:30 Keynote** | **Nicolas Clavier (CNRS):** *Hydrothermal reducing conversion of uranium(VI) oxalate into oxides* | **Gregory Holmbeck (INL):** *Elucidating the Radiation-Induced Redox Chemistry of Plutonium Under Used Nuclear Fuel Reprocessing Conditions* |
| 9:00 | **Sheridon Kelly (LBNL):** *Actinide thioamidates as precursors for actinide sulfide nanomaterials* | **Quentin Hervy (CEA):** *How Plutonium "Brown" Peroxo complex emerges from aerated electrolysis experiments* |
| 9:20 | **Paul Estevenon (CEA):** *Synthesis of $PuO_2$ and $(U,Pu)O_2$ solid solution by citric acid assisted Combustion Synthesis* | **Jeffrey McLachlan (LBNL):** *The Redox Chemistry of $[M(IV/III)(3,4,3\text{-}LI(1,2\text{-}HOPO))]^{0/-}$ Complexes in Acidic Aqueous Media* |
| 9:40 | **Gordon Thorogood (ANSTO):** *Phase Separation in Fluorite-Related $U_{1-y}Ce_yO_{2-x}$: New Insights via Variable Temperature Neutron Diffraction* | **Julien Margate (ICSM):** *Chronicles of peroxide plutonium species: structural characterization of new Pu(IV) green peroxide* |
| 10:00 | Coffee break – **GRANDE AUDIENCE** | |
| | Chairpersons: **Olaf Walter & Nicolas Clavier** | Chairpersons: **Robin Taylor & Matthieu Virot** |
| **10:40 Keynote** | **Eva de Visser-Týnová (NRG):** *Fabrication and Dissolution of Americium Plutonium Oxide Fuels* | **Koichiro Takao (Tokyo Institute of Technology):** *Development of Water-Compatible $N_3O_2$-Pentadentate Planar Ligands for Uranium Harvesting from Seawater* |
| 11:10 | **Rafael Caprani (CEA):** *Fission Products speciation in irradiated MOx fuel during interim storage accidental scenarios* | **Emma Archer (Colorado School of Mines):** *Complexation and Solvent Extraction Properties of the N, N, N', N'-tetraethyl-1,10-phenanthroline-2,9-diamide extractant with Ln(III) and An(III)* |
| 11:30 | **Jérémie Manaud (JRC):** *Synthesis and characterisation of $CeO_2$ and $PuO_2$ pellets with representative microstructure for General Purpose Heat Sources* | **Diego Moreno Martinez (CEA):** *Speciation of Uranium(VI) with amido-phosphonate ligands in organic phase and at the solid/liquid interface studied by Molecular Dynamics* |
| 11:50 | **Lionel Desgranges (CEA):** *Incorporation of fission products into oxide nuclear fuel: towards a new paradigm?* | **Thomas Sittel (KIT INE):** *Probing the metal ion-ligand interaction in An(III) and Ln(III) complexes: an overview about recent advancements* |
| 12:10 | **Christophe D'Angelo (CEA):** *Quantification of the morphology and roughness of oxide powder particles in relation to their manufacturing history and flow properties* | **Mathilde Goujet (CEA):** *Reactivity of actinides mono-cations with NH3 in gas phase: A study using ICP-MS and quantum chemistry* |
| 12:30 | Lunch – **GRANDE AUDIENCE** | |
| | **ACTINIDE MATERIALS AND NUCLEAR FUELS** | **ACTINIDE AND FISSION PRODUCTS CHEMISTRY** |
| | Chairpersons: **Eva de Visser-Týnová & Carole Valot** | Chairpersons: **Gregory Holmbeck & Thomas Dumas** |
| **14:00 Keynote** | **Robert Harrison (University of Manchester):** *Field Assisted Sintering of $UO_2$ Based Nuclear Fuels* | **Hans-Conrad Zur Loye (University of South Carolina):** *Crystal Growth of New Uranium and Transuranic Phases via High Temperature Solution and Mild Hydrothermal Methods: Exploration of New Materials as Potential Nuclear Waste Forms* |
| 14:30 | **Priscilla Berenguer-Besnard (CEA):** *Characterization of the phases formed during the high temperature oxidation of $(U,Pu)O_2$ mixed oxides* | **Ryoma Ono (Tokyo Institute of Technology):** *Molecular and Crystal Structures of Pu(IV)-Nitrato Complexes with Double-Headed 2-Pyrrolidone Derivatives in $HNO_3$(aq)* |
| 14:50 | **Sarah Finkeldei (University of California, Irvine):** *Fundamental insights into defect generation and transport phenomena at grain boundaries in nuclear fuel* | **Joshua Turner (NNL):** *The adsorption of Pu(IV) in the presence of cesium phosphomolybdate, barium-strontium nitrate, zirconium molybdate and zirconium hydrogen phosphate* |
| 15:10 | **Stéphanie Szenknect (ICSM):** *Impact of Ru, Rh, Pd and Mo metallic particles on the dissolution kinetics of $UO_2$* | **Philippe Martin (CEA):** *Performance and design of HotXAS: the future in-house XAS apparatus at Atalante* |
| 15:30 | **Emma Kindall (WSU):** *Thermal Oxidation and High Temperature Structures of Uranium Carbide: in situ X-Ray Diffraction Studies* | **Jun Tang (Science and Technology on Surface Physics and Chemistry Laboratory):** *Investigation of the microcosmic dynamics behaviors of hydrogen and oxygen in plutonium oxide via ab initio molecular dynamics simulations* |
| 15:50 | Coffee break – **GRANDE AUDIENCE** | |
| | **CLOSING LECTURE – SALLE DU CONCLAVE** | |
| **16:30** | **Eric Proust (CEA):** *Nuclear energy for space exploration* | |
| 17:30 | **CLOSING CEREMONY – SALLE DU CONCLAVE** | |

## GRANDE AUDIENCE — POSTER SESSION - TUESDAY SEPT. 3

| | ACTINIDE AND FISSION PRODUCTS SEPARATION | |
|---|---|---|
| SEP P01 | *Conception, synthesis and evaluation of new extractants systems for rhodium valuation* | **Vairani Amaru** |
| SEP P02 | *The CoXTL Concept: An Alternative Solution to Nuclear Fuel Recycling through Hexavalent Actinide Co-Crystallization* | **Laetitia Delmau** |
| SEP P03 | *Influence of Pu(IV) and Pu(VI) on the extraction properties of anion exchange resins* | **Sébastien Faure** |
| SEP P04 | *Extraction and speciation study of plutonium(IV) and technetium(VII) coextraction with N,N-dialkyl amide* | **Donatien Gomes Rodrigues** |
| SEP P05 | *Exploration of Alkaline Processing of Spent Nuclear Fuel* | **Gabriel Hall** |
| SEP P06 | *Controlled precipitation of actinides in a complex organic phase* | **Mathéo Henry** |
| SEP P07 | *Developing a process to decontaminate effluent and recover uranium and plutonium* | **Xavier Heres** |
| SEP P08 | *Commercializing Isotope Recovery from UNF Recycling and Transmutation* | **Yana Karslyan** |
| SEP P09 | *Industrial manufacturing process of AmO2 powder from a Pu solution: separation, conversion and calcination* | **Guilhem Kauric** |
| SEP P10 | *Study of Ruthenium and Palladium Transfer Kinetics and Optimization of Waste Nuclear Fuel Separation Process* | **Marwa Khoder** |
| SEP P11 | *The effect of phosphonates on lanthanide separation for surface-grafted porous zirconia* | **Otaki Miho** |
| SEP P12 | *Uranium(VI)/plutonium(IV) separation from mixed oxide spent nuclear fuels using a single monoamide extractant* | **Solenne Michaud** |
| SEP P13 | *Safety assessment of the TEHDGA-impregnated silica-based adsorbent for extraction chromatography* | **Yasunori Miyazaki** |
| SEP P14 | *Small-angle neutron scattering diffractometer SANS-J for nuclear separation chemistry: Joint collaborations between ICSM and JAEA* | **Ryuhei Motokawa** |
| SEP P15 | *Diversification of suppliers on diluent (TPH) at La Hague Plant* | **Jérémy Nos** |
| SEP P16 | *Simulation of a non-homogeneous precipitator in the actinides separation context* | **Camilo Ruiz** |
| SEP P17 | *Influence of TODGA degradation compounds in the separation of Am/Cm in the AmSel process* | **Iván Sánchez-García** |
| SEP P18 | *Strategy and feedback on industrial decontamination using innovative and highly selective Cs sorbant* | **Nathalie Segond** |
| SEP P19 | *How the Choice of the Counter-ion/Diluent Pair Tunes the Solvent Extraction of Cesium by Calixarene-crown-ethers* | **Marie Simonnet** |
| SEP P20 | *Extraction of Nitric Acid by Tripodal Amides* | **Amy Speelman** |
| SEP P21 | *Synthesis of chiral ligands for actinides extraction* | **Marine Thimotee** |
| SEP P22 | *Partitioning of Neptunium in TBP-HNO3 System for Optimization of the CoDCon Flowsheet* | **Peter Tkac** |
| SEP P23 | *New synthetic pathway towards a hydrophilic 2,9-bis-triazolyl-1,10-phenanthroline ligand for selective americium stripping* | **Pieter Troosters** |
| SEP P24 | *Shaping of hybrid materials and modeling of the column process for the selective extraction of uranium from high sulphate concentration solutions* | **Randal Tzeou Hah Fauline** |
| SEP P25 | *Differences in extraction mechanisms between fluorous and organic extraction systems: structuring extractants at the interface and in the bulk extracting phase* | **Yuki Ueda** |
| SEP P26 | *Removal of plutonium and americium from nitrate solution by precipitation* | **Guillaume Verwaerde** |
| SEP P27 | *Monitoring plutonium concentration in process solutions through UV-Vis spectrophotometry and multivariate analysis* | **Alice Pellerin-Lefebvre** |

## GRANDE AUDIENCE — POSTER SESSION - TUESDAY SEPT. 3

| | | |
|---|---|---|
| | **ACTINIDE MATERIALS AND NUCLEAR FUELS** | |
| MAT P01 | *Preparation of mixed actinide oxides by colloidal sol-gel route* | **Hélène Barbier** |
| MAT P02 | *Exploring predictive laws for the flowability of powder mixtures: the case of UO2 powder* | **Nicolas Blanc** |
| MAT P03 | *Application of thermal analysis for future advanced fuel cycles and waste management* | **Marcin Brykała** |
| MAT P04 | *Preparation of (U,Pu)O2 mixed oxides by hydroxide route* | **Fatima Chmali** |
| MAT P05 | *Wet chemistry route to prepare a panel of irradiated MOx fuel model compounds* | **Mathias Fulchiron** |
| MAT P06 | *Adaptation of MOX MIMAS process to the isotopic evolution of plutonium – Research of alternative lubricant and poreformer* | **Thomas Geneves** |
| MAT P07 | *Evaluation of dissolution behavior of unirradiated Fugen MOX pellets* | **Shuya Kimura** |
| MAT P08 | *Comparison of the dissolution kinetics and mechanisms of UO2 and U3O8 in nitric acid* | **Charlene Mhanna** |
| MAT P09 | *Impact of AMSEL ligands (Ph-SO3-BTBP) on the conversion strategy to obtain the final zirconia-based matrix* | **Ana Núñez** |
| MAT P10 | *A Novel Approach to Studying Thorium Diffusion in UO2+x Single Crystals* | **Ahmed Ouhammou** |
| MAT P11 | *Surface Decontamination Techniques for HALEU Metal Ingots* | **Michael Patterson** |
| MAT P12 | *In-depth analysis of volatile fission products in high burnup SFR fuel using a (U,Pu)O2 SIMMOx approach* | **Matthias Roucayrol** |
| MAT P13 | *Thermodynamic and Kinetic Effects of Impurities in Uranium Alloys* | **Jibril Shittu** |
| | **WASTE CONDITIONING AND GEOLOGICAL REPOSITORY** | |
| WAS P01 | *Radionuclide Complexation with TBP and DBP: Thermodynamic Data Generation for the ThermoChimie Database* | **Yawen Chen** |
| WAS P02 | *Modelling the gas generation of actinide bearing materials in storage containers* | **Vincent Fiegel** |
| WAS P03 | *Continuous radioactive organic liquid waste treatment technology using an emulsion flow apparatus* | **Takanori Hoshino** |
| WAS P04 | *The effect of pH and radiation damage on diffusion, dissolution and precipitation during glass corrosion* | **Anamul Haq Mir** |
| WAS P05 | *Uranium hexafluoride reduction chemistry in ionic liquid media* | **Renée Olney** |
| WAS P06 | *Long-term storage and aging of PuO2 powder up to 50 years old* | **Robin Orr** |
| WAS P07 | *Underwater weathering of UOx/MOx fuels* | **Aurélien Perrot** |
| WAS P08 | *Irradiation effects on the leaching of nuclear waste glasses: Understanding and modeling of leaching mechanisms* | **Morgane Richet** |
| WAS P09 | *Redox reactivity of selenium(VI) in the presence of Fe(II) and S(-II) bearing mineral phases under the conditions of Callovo-Oxfordian pore water* | **Diksha Saini** |
| WAS P10 | *Radionuclide Leaching Model for Spent BWR Tie Plate in Geological Disposal: Factors Affecting 14C Leaching and Post-Closure Safety Assessment* | **Tomofumi Sakuragi** |
| WAS P11 | *Coprecipitation of U( IV) and Ce(III).* | **Mustapha Gida Saleh** |
| WAS P12 | *Study of Ca-Actinyl(VI)-CO3 complexes using CE-ICP-MS with polyetheretherketone capillaries* | **Ruopei Sun** |
| WAS P13 | *Determination of Cl-36 Distribution in Spent BWR Tie Plate Using Accelerator Mass Spectrometry* | **Shingo Tanaka** |
| WAS P14 | *Radionuclide Complexation with Phthalate: Thermodynamic Data Generation for the ThermoChimie Database* | **Benjamin Urick** |
| WAS P15 | *Insight into the Interface Behaviors and Transport Mechanisms of Actinide Colloids* | **Wangsuo Wu** |
| WAS P16 | *Dissolution Rates of Cerium and Zirconium Dioxide Nanoparticles in Nuclear Fuel Debris Retrieval in Batch and Continuous Systems* | **Yiwei Zhang** |

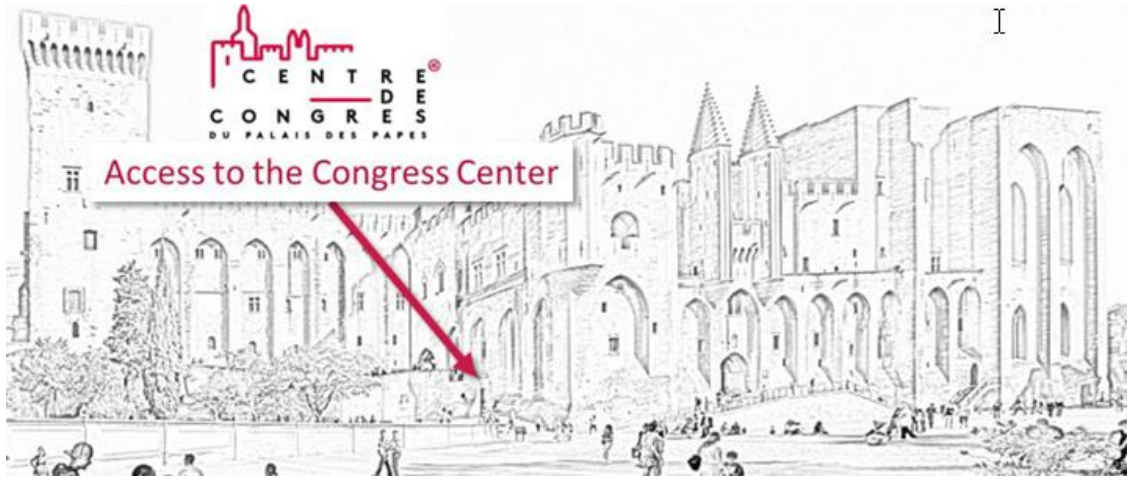
## GRANDE AUDIENCE — POSTER SESSION - TUESDAY SEPT. 3

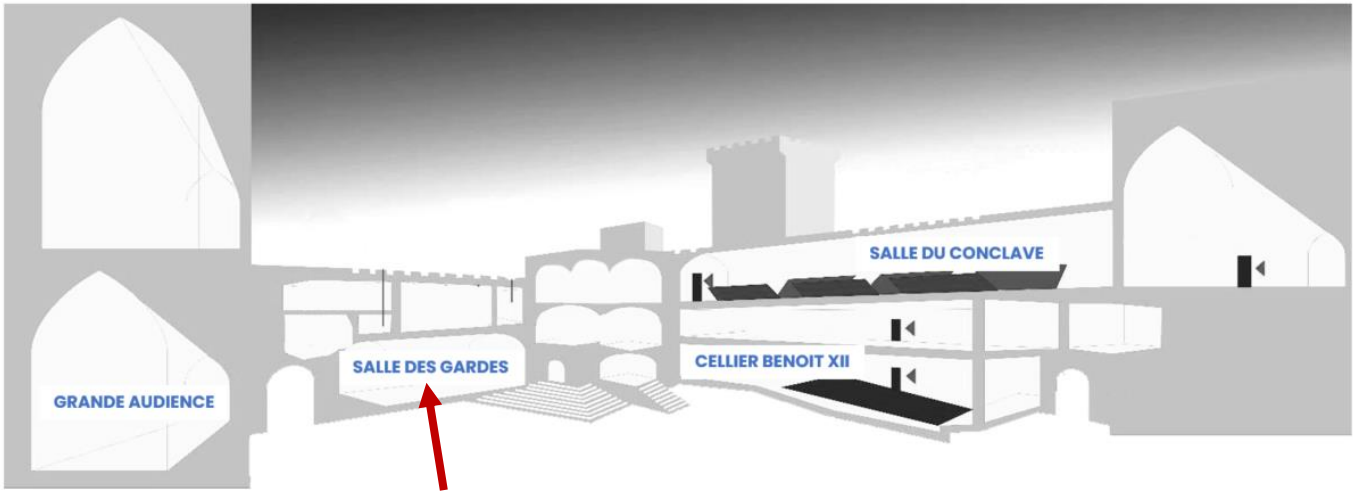
| | | |
|---|---|---|
| | **SAFEGUARDS AND ANALYTICAL CHEMISTRY** | |
| ANA P01 | *New Insights For The Use Of Ultra-Low 236U/238U Isotope Ratio By ICP-MS/MS For Environmental Analysis* | **Hugo Jaegler** |
| ANA P02 | *Enabling Fuel Cycle Safeguards through a Solvent Extraction Digital Twin coupled to Real-Time Online Monitoring* | **Justin Cooper** |
| ANA P03 | *Quantification of lanthanides from three optical spectroscopic techniques across three pathlengths on a microfluidic device* | **Hope Lackey** |
| ANA P04 | *Understanding the acidification mechanisms of alkaline Ru solutions, for a robust ICP-OES/MS analysis* | **Mathis Leblanc** |
| ANA P05 | *Acoustic Measurements of Solvent Extraction Processes in Support of Safeguards* | **Luis Ocampo Giraldo** |
| ANA P06 | *Advancing Analytical Chemical Processing to Support Molten Salt Reactor Fuel Performance Analyses and Safeguards* | **Mathew Snow** |
| ANA P07 | *Achievement of electrochemical analyses on stainless steels in a hostile nuclear environment* | **Vinicius Teixeira** |
| | **PYROCHEMISTRY AND CHEMISTRY FOR MOLTEN SALTS** | |
| PYR P01 | *A Novel Glove-box Scale Testbed for Fundamental Pyroprocessing Research and Development* | **Jacob Brookhart** |
| PYR P02 | *Chemical behavior of fission products in NaOH-KOH molten salts* | **Céline Cannes** |
| PYR P03 | *Chemical durability of ceramic materials in molten salts: application to nuclear materials pyroprocessing* | **Thomas Dalger** |
| PYR P04 | *Chemical behavior of uranium in chloride molten salts* | **Sylvie Delpech** |
| PYR P05 | *NaCl-UCl3 synthesis routes for molten salts fast reactors* | **Aline Dressler** |
| PYR P06 | *Study of the behavior and precipitation of lanthanides in molten chloride.* | **Axel Legris** |
| PYR P07 | *Precipitation phenomena of actinide and lanthanide in a NaCl-CaCl2 and NaCl-MgCl2* | **Ahmed Haïtam Meskine** |
| PYR P08 | *Chlorine isotopes separation for Fast-Spectrum Molten Salt Reactors* | **Arthur Millet** |
| | **ACTINIDE AND FISSION PRODUCTS CHEMISTRY** | |
| ACT P01 | *X-ray analyses on radioactive matter at the MARS beamline of Synchrotron SOLEIL* | **Timothy Burrow** |
| ACT P02 | *Structural and microstructural heterogeneities: which impact on dissolution kinetics?* | **Lorenzo Callejon** |
| ACT P03 | *PuO2 from calcination of a Pu(IV) peroxo complex: preliminary results* | **Thomas Colin** |
| ACT P04 | *Complexation of curium(III) and europium(III) with aqueous phosphates: a combined experimental, thermodynamic, and ab initio study* | **Norbert Jordan** |
| ACT P05 | *Ultrasound-assisted conversion of UO2 into U(VI) peroxides in aqueous solution saturated with Ar/O2* | **Julien Margate** |
| ACT P06 | *Machine learning methods for fission gas and defect diffusivity modeling in advanced oxide fuels* | **Audrey Miles** |
| ACT P07 | *Synthesis and Characterization of Polynuclear Actinide(IV) Species* | **Maëva Munoz** |
| ACT P08 | *Exploration of predominant factors of U(VI) precipitation formation in the advanced reprocessing technology using diamide ligands* | **Makito Nojima** |
| ACT P09 | *Exploring the formation mechanism of PuO2 colloidal nanoparticles* | **Matthieu Virot** |
| ACT P10 | *Comparing Transmutation Fuel Irradiation between a Fast Neutron Spectrum and a Cd-filtered Thermal Spectrum* | **Karen Wright** |
| ACT P11 | *Thermodynamics of Ln(III)-EDTA systems in highly alkaline solutions.* | **Marcin Ziobro** |
| ACT P12 | *Study of the interaction between actinides and peptide ligands* | **Emilien Faux** |
| ACT P13 | *Interaction of Plutonium (IV) with proteins : Focusing on the impact of amino acids on the plutonium speciation* | **Loïc Daronnat** |

## ACCESS TO THE CONFERENCE

**!!! Name badges must be worn during all technical sessions, and events !!!**

***Due to security control at the entry of the congress center, it is strongly recommended to leave your suitcases at the hotel.***




- Sunday Sept. 1 from 4:00 pm to 7:00 pm: main registration + welcome drink at 6:00 pm
- From Monday Sept. 2 to Thursday Sept. 4 : opportunity to register in the morning from 8 am to 9 am