

# NFC3

## Nuclear Fuel Cycle: A Chemistry Conference – 2026

Monday, February 2, 2026

13:30 Connection to the Conference

13:45 Introduction to NFC3



### Material Chemistry

Chairs : Eleanor L. BRIGHT (ESRF - HZDR) & Matthieu VIROT (ICSM)

14:00 Hydrothermal reduction conversion of uranium (VI) to  $UO_2$  using carboxylic acids

**Dorian LAFFONT**  
ICSM

14:20 Impact of microstructural properties on the dissolution kinetics of  $MOx (U,Pu)O_2$  fuel

**Vincent BOSQUE GUARDIA**  
CEA

14:40 The oxidation of Ln-doped UN spent fuel materials: structural and thermodynamic considerations

**Pascal UHLEMANN**  
FZJ

15:00 Multi-colloidal self-assembly route for the preparation of Mixed Oxide nuclear fuels

**Hélène BARBIER**  
ICSM

15:20 Cerium Speciation in Molten Salt Environments

**Sheridon KELLY**  
LLNL, LANL

15:40

Break

16:00

### KEYNOTE #1:

### Crystallographic relationships and intermediate oxides in the oxidation of $UO_2$

**Eleanor L. BRIGHT**  
ESRF-Rosendorf & HZDR

16:40 Understanding the sintering of MOX nuclear fuels: challenges associated with the characterization of a multiphasic microstructure

**Evan MOREL**  
CEA

17:00 Alternative deconversion pathway for  $UF_6$  and uranium recovery

**Renee OLNEY**  
U. Nevada, Las Vegas

17:20 Impact of hydroxide precipitation on the Sintering and Chemical Durability of  $U_{1-x}Th_xO_2$  solid solutions

**Lorenzo CALLEJON**  
ICSM

17:40 Impact of fission products on the thermophysical properties of  $(U,Pu)O_{2-x}$  fuels using a SIMMOx approach

**Matthias ROUCAYROL**  
CEA



# Nuclear Fuel Cycle: A Chemistry Conference – 2026

Tuesday, February 3, 2026



13:45 Connection to the Conference

## Separation Chemistry

Chairs : Elena Macerata (POLIMI) & Jessica JACKSON (Colorado S. of Mines)



14:00 Actinide precipitation in complex organic media

**Mathéo HENRY**  
ICSM

14:20 Hydrophobic CMPO-based low-melting mixtures for sustainable Spent Nuclear Fuel recycling

**Massimiliano F. S. TENTORIO**  
Politecnico di Milano

14:40 Molecular Dynamics Study of Uranium Extraction from TBP/Heptane Solutions Using Amidoxime-Grafted Silica

**Emília V. F. DE ARAGÃO**  
CEA

15:00 Impact of Accumulated TODGA Degradation Compounds on a CHON-Compliant AmSel Process

**Pablo VACAS-ARQUERO**  
CIEMAT

15:20 Use of diglycolamide derivatives for rhodium recovery

**Vairani Amaru,**  
CEA

15:40

Break

16:00

## KEYNOTE #2: f-Element Separations with a Focus on Uranium Recycling

**Santa JANSONE POPOVA**  
ORNL

16:40 Oxidant-free oxidative separation of Bk(IV)/Cf(III) and Ce(IV)/Ln(III) using 3,4,3-LI-(1,2-HOPO) and Design of Experiments

**Elise ENG**  
U. California Berkeley, LBNL

17:00 Self-assembly of grafted surfactants for actinides extraction under cloud point conditions

**Morvan GAUDIN**  
CEA

17:20 Kinetic Studies of U(IV) and Pu(IV) in Aqueous Nitric and TBP/Dodecane Solutions

**Matthew COMINS**  
PNNL

17:40 Controlling Viscosity and Interfacial Properties in Monoamide Solvents: Roles of Nitric Acid, Uranium, and Phase Modifiers

**Anh DANG**  
Colorado School of Mines





# Nuclear Fuel Cycle: A Chemistry Conference – 2026

Wednesday, February 4, 2026



13:45 Connection to the Conference

## Solution Chemistry

**Chairs : Koichiro Takao (Institute of Science Tokyo) & Melody Maloubier (IJCLab)**

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|-------|--|--|
| 14:00 | Ruthenium speciation during acidification of alkaline solution using a UV-Visible fast detector and an in situ probe                 | <b>Mathis LEBLANC</b><br>CEA                   |
| 14:20 | Inactive studies into the effect of insoluble fission products on the generation of Ag <sup>2+</sup> for the dissolution of MOx fuel | <b>Nicholas BRAMAH</b><br>Lancaster University |
| 14:40 | Experimental and Quantum Chemical Insights into the Coordination Chemistry of Protactinium(V) in Chloride Media                      | <b>Tamara SHAABAN</b><br>PhLAM, UMR 8523       |
| 15:00 | Destabilization pathway of the [Pu <sub>6</sub> O <sub>4</sub> (OH) <sub>4</sub> ] <sup>12+</sup> cluster in acetate medium          | <b>Maëva MUNOZ</b><br>CEA                      |

15:20

Break

15:40

## KEYNOTE #3:

**Actinide Colloidal Phases and their Impact on Nuclear Waste Management**

**Julia NEUMANN**  
Argonne National Laboratory

## Conditioning and Repository

**Chairs : Thierry MENECKART (SCK-CEN) & Nicolas DACHEUX (ICSM)**

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|-------|---|--|
| 16:20 | Aging and Oxidation Processes of UO <sub>2</sub> Nanoparticle Materials Under Ambient Conditions Relevant to Interim Storage of Spent Fuel  | <b>Kevin D. STUKE</b><br>FZJ                         |
| 16:40 | Synthesis, Formation and Characterization of Chukanovite (Fe <sub>2</sub> (OH) <sub>2</sub> CO <sub>3</sub> ) and Its Role in the Dissolution of MOX Fuel under Reducing Conditions | <b>Mustapha G. SALEH</b><br>Chalmers                 |
| 17:00 | Investigations Into the Spectroscopic Changes of Actinyls Based on Hydroxide and Nitrate Ligation   | <b>Castro LESLIE</b><br>U. California Berkeley, LBNL |
| 17:20 | Towards an Understanding of the Behaviour of Ruthenium in the Vitrification of Highly Active Waste: A Study of the Volatilisation of RuO <sub>2</sub>                               | <b>Bibi SHEHRBANO</b><br>Lancaster University        |



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