

# Workshop program



## NUFUEL 2025

Research into Nuclear Fuel in Europe

Delft (The Netherlands), September 16-18



Tuesday 16 September 2025					
08:30	09:00	Arrival at the Art Centre Delft			
Time	Speaker	Title	Session	Chairs	
<b>09:00 09:20 Workshop opening</b>					
09:20	09:40	Nicolas Clavier	Synchrotron investigation of relations between redox speciation and microstructural development in (U,Ce)O <sub>2+x</sub> model fuels	Fuel synthesis and fabrication	Anna Smith (TU Delft) Philippe Martin (CEA)
09:40	10:00	Dorian Laffont	Direct precipitation of mixed actinide and lanthanide oxides by reductive hydrothermal conversion of uranium (VI)-containing solutions		
10:00	10:20	Fatima Chmali	Synthesis of mixed oxides (U,Pu)O <sub>2</sub> by hydroxide route: Towards the preparation of MOX fuel		
<b>10:20 11:00 Coffee break</b>					
11:00	11:20	Abbie McCarrick	Investigating Properties of Particulate Fuel in Inert Matrices	Fuel synthesis and fabrication	Karin Popa (JRC) Nicolas Clavier (ICSM)
11:20	11:40	Gabriel Murphy	Understanding the microstructural performance of Al-, Cr-, Mn-, V- and Fe-doped UO <sub>2</sub> ceramics as large grain accident tolerant nuclear fuel materials		
11:40	12:00	Max Salata-Barnett	Oxidation Resistance of Uranium Nitride Powders from Three Different Uranium Metals		
12:00	12:20	Maria Giamouridou	Diffusion studies in Xe-implanted U-N-O system		
<b>12:20 13:40 LUNCH</b>					
13:40	14:00	Xiaofeng Guo	High Temperature Structures, Oxidation, and Thermodynamics of Uranium Nitride and Uranium Carbide	Fuel synthesis and fabrication & Separate effect studies	Philippe Martin (CEA) Rene Bes (University of Helsinki)
14:00	14:20	Elina Charatsidou	Experimental investigation of physical, mechanical and thermal properties of (U, Zr), (U, Th) and (U, Zr, Th) metallic and nitride fuels		
14:20	14:40	Pascal Uhlemann	Insights into the structure and oxidation stability of Ln-doped UN spent fuel-based materials		
14:40	15:00	Damien Prieur	Synchrotron Radiation for the Study of Actinides and Fission Products in Nuclear Fuel		
15:00	15:20	Daniil Popov	Experimental characterisation and modelling of helium diffusion in lanthanide-doped uranium dioxide		
<b>15:20 16:00 Coffee break</b>					
16:00	16:20	Daniil Shirokiy	Chemical and Structural Behaviour of Nd-Doped CsI Included Nanostructured UO <sub>2</sub>	Separate effect studies	Damien Prieur (ROBL) Gabriel Murphy (Forschungszentrum Jülich)
16:20	16:40	Philippe Martin	Characterization of the phases formed during the high temperature oxidation of (U,Pu)O <sub>2</sub> mixed oxides		
16:40	17:00	Eleanor Lawrence Bright	Formation and characterization of U <sub>4</sub> O <sub>9</sub> and U <sub>3</sub> O <sub>7</sub> during topotactic oxidation of UO <sub>2</sub>		
17:00	17:20	Florence Legg	Investigating the structural and chemical properties in the oxidation of U-Th MOx fuel		
17:20	17:40	Matthias Roucaÿrol	Impact of fission products on the melting point of (U,Pu)O <sub>2-x</sub> fuels – Experimental study using a SIMMOx approach		
17:40	19:40	<b>POSTER SESSION &amp; DRINKS</b>			

Wednesday 17 September 2025				
Time	Speaker	Title	Session	Session
09:00	09:20 Maulik Patel	Radiation induced modifications in ZrN	Post irradiation examinations, Irradiation design & preparation	Fitriana Nindiyasari (NRG-Pallas)
09:20	09:40 Rémy Leroy	Describing the effects of irradiation on the thermal conductivity of mixed oxide fuels for fast neutron reactor		
09:40	10:00 Thomas Grenèche	Characterization of fission gas bubbles by TEM in irradiated UO <sub>2</sub> fuel		
10:00	10:20 Konstantin Kottrup	Molten salt irradiations at the HFR		
<b>10:20</b>	<b>11:00</b>	<b>Coffee break</b>		
11:00	11:20 Linyi Yang	Preliminary Study on TRISO Particle Simulation and Effective Thermal Conductivity of FCM Fuel Using OFFBEAT	Fuel performance simulation	Janne Heikinheimo (VTT) Tommaso Barani (CEA)
11:20	11:40 Giovanni Zullo	Extended integral validation database of SCIANTEX and application to fuel fragmentation under RIA conditions		
11:40	12:00 Zola Hinds	Smooth Particle Hydrodynamics for fuel fragmentation relocation		
12:00	12:20 Lokesh Verma	Implementing hydrogen behaviour models in OFFBEAT fuel performance code		
<b>12:20</b>	<b>13:40</b>	<b>LUNCH</b>		
13:40	14:00 Fabien Bernachy-Barbe	Modelling the axial migration of cesium in fast reactor fuel pins	Fuel performance simulation	Janne Heikinheimo (VTT)
14:00	14:20 Giacomo Petrosillo	Thermodynamically-informed and mechanistic modeling of fission product release during severe accidents	Thermodynamic modelling	Juliano Schorne-Pinto (University of South Carolina)
14:20	14:40 Christine Guéneau	Thermodynamic study of the UO <sub>2</sub> -SiO <sub>2</sub> -ZrO <sub>2</sub> system for severe accident application		
14:40	15:00 Alexandre Ranno	Thermodynamic study of the Cr-Zr-U system		
15:00	15:20 Daphne Cette	Enabling Americium-Powered Space Missions: Thermodynamic Modelling of the U-Pt-Rh-O System		
<b>15:20</b>	<b>16:00</b>	<b>Coffee break</b>		
16:00	16:20 Valentine Camus-Genot	Investigation of Cerium Trichloride Hydrates used as Surrogates of Plutonium Trichloride Hydrates	Fuel synthesis & thermodynamic modelling	Christine Gueneau (CEA) Anna Smith (TU Delft)
16:20	16:40 Juliano Schorne-Pinto	Development of the thermodynamic molten salt database MSTDB-TC and its use in modeling molten salt reactor fuel		
16:40	17:00 Dennis Alders	Thermochemistry of irradiated chloride fuel salts: application to safety analysis of accident scenarios in MSR		
17:00	17:20 Leonard Floarea	Behaviour of soluble fission products in UCl <sub>3</sub> based fuels for Molten Salt Reactors		
17:20	17:40 Jocelyn Soppo	Molten Salts Density modelling: getting insight into the effect of fission products accumulation in MSRs		
<b>17:40</b>	<b>20:30</b>	<b>WORKSHOP DINNER</b>		

Thursday 18 September 2025				
Time	Speaker	Title	Session	Session
09:00	09:20 Pär Olsson	Modelling thermal transport properties in nuclear materials	Modelling from atomic scale to mesoscale	Marjorie Bertolus (CEA)
09:20	09:40 Paul Fossati	Dynamic aspects of the superionic transition in UO <sub>2</sub>		
09:40	10:00 Luca Messina	Phase-field modeling and benchmark of microstructure evolution in polycrystalline UO <sub>2</sub> with the INFERNO code		
<b>10:00</b>	<b>10:30</b>	<b>Coffee break</b>		
10:30	10:50 Nick Ter Veer	New insights into the structural, thermodynamics, and thermal-physical properties of molten chloride fuel salts	Modelling from atomic scale to mesoscale	Tommaso Barani (CEA) Pär Olsson (KTH)
10:50	11:10 Augusta Korsgaard	Modeling the solubility of fission products and fluorides in Molten Salt Reactor fuel		
11:10	11:30 Agustin Salcedo	Molecular simulations of the behavior of gaseous fission products in molten fuel salts		
11:30	11:50 Marjorie Bertolus	The co-funded european partnership on nuclear materials CONNECT-NM and its research agenda		
<b>11:50</b>	<b>12:00</b>	<b>Workshop closure</b>		
<b>12:00</b>	<b>13:15</b>	<b>LUNCH</b>		
<b>13:30</b>	<b>17:00</b>	<b>TU Delft Reactor Institute research reactor tour &amp; Science communication workshop</b>		