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# 32<sup>nd</sup> Spent Fuel Workshop: Preliminary Program

Tuesday, 5<sup>th</sup> November 2024

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**13:30 – 14:00 REGISTRATION & COFFEE**

**14:00 – 14:15** Welcome from the organizing committee

**14:15 – 14:30** Tribute to Professor Rod C. Ewing. *Lena Z. Evins (SKB, Sweden)*

## **Session 1: Spent fuels management strategies and R&D activities**

**14:30 – 14:55** French strategy for High Level Waste disposal including spent fuel storage. *Guillaume Jacquart (EDF, France)*

**14:55 – 15:20** Spent nuclear fuel research in the reformed Belgian nuclear context. *Beatriz Acevedo Muñoz (SCK – CEN, Belgium)*

**15:20 - 15:45** Metallic uranic spent fuels: Potential disposal routes and their challenges. *Rosemary Hibberd (NWS, UK)*

**15:45 – 16:10** The SAREC workpackage in EURAD 2 project. *Lena Z. Evins (SKB, Sweden)*

**16 :10 – 16:40** Coffee break

## **Session 2: Post-irradiation examinations and innovative characterization methods**

**16:40 – 17:05** Oxidation of Spent Fuel during dry interim storage: characterization of the fuel microstructure and comparison with a non-oxidized fuel section. *Pauline Fouquet-Métivier (CEA, France)*

**17:05 – 17:30** MARS beamline: a unique facility for the characterization of highly radioactive samples from the nuclear fuel cycle. *Denis Menut (SOLEIL, France)*

**17:30 – 17:55** Novel X-ray tomographic imaging characterization abilities at the MARS Beamline. *Pierre Piault (SOLEIL, France)*

**17:55 – 18:20** Numerical approach to irradiated MOX fuel fracture under storage conditions: the use of bending tests at a micro scale to determine fracture properties. *Jean-Paul Rudasingwa Kimonyo (CEA, France)*

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**8:30 – 9:00: WELCOME & COFFEE**

## **Session 3: Model materials studies**

**9:00 – 9:25** Numerical analysis of cations distribution during sintering and its effects on fuel homogeneity. *Ahmed Ouhammou (CEA, France)*



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**9:25 – 9:50** Leaching behavior of irradiated Cr-doped UO<sub>2</sub> fuel under high-pressure H<sub>2</sub> atmosphere. **Alexandre Barreiro-Fidalgo (Studsvik Nuclear AB, Sweden)**

**9:50 – 10:15** Electrochemical corrosion rate studies of MOx SIMFuels. **Ian Robertson (Lancaster Univ., UK)**

**10:15 – 10:45** Coffee break

**10:45 – 11:10** Dissolution mechanism of Rh(s) and Ru(s) as fission products in spent nuclear fuel. **Sonia García-Gómez (Universitat Politècnica de Catalunya, Spain)**

**11:10 – 11:35** Chemical durability and surface modifications of FP doped UO<sub>2</sub> pellets under long-term wet interim repository conditions. **Nicolas Dacheux (ICSM, France)**

**11:35 – 12:00** The corrosion of UO<sub>2</sub>-based spent nuclear fuel under storage and disposal conditions: a comparison of real irradiated fuel and SIMFUEL studies. **Colin Boxall (Lancaster Univ, UK)**

**12 :00 – 13:30 LUNCH**

#### **Session 4: Spent fuels alteration studies**

**13:30 – 13:55** Low burn-up spent fuel leaching experiments with simplified and highly alkaline groundwater under oxidative conditions. **Joan de Pablo (Universitat Politècnica de Catalunya, Spain)**

**13:55 – 14:20** Long-term leaching of spent UOX fuel in repository relevant conditions. **Thierry Mennecart (SCK-CEN, Belgium)**

**14:20 – 14:45** Understanding the corrosion behaviour of used mixed oxide (MOX) fuels: Radionuclide release during long-term leaching in a reducing environment. **Christian Schreinemachers (FZ Jülich GmbH, Germany)**

**14:45 – 15:10** Comparison of results from dissolution of spent nuclear fuels under various conditions. **Michel Herm (KIT-INE, Germany)**

**15:10 – 15:35** Characterization and leaching studies of a failed fuel rod and implications for radionuclide release in a repository setting. **Lena Z. Evins (SKB, Sweden)**

**15 :35 – 16:45 Coffee break & POSTER SESSION**

**16:45 – 17:10** Determination of the residual radionuclide inventory of internal and distal specimens of a leached spent nuclear fuel rod segment. **Tobias König (KIT-INE, Germany)**

**17:10 – 17:35** Aqueous Stability Studies of Corium: Insights from Actinide and Fission Products Release during Severe Accidents. **Daniel Serrano-Purroy (JRC-K, EC)**

**19:00 MUSEUM PRIVATE TOUR & WORKSHOP DINNER**

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**8:30 – 9:00: WELCOME & COFFEE**



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**Session 5: Radiolysis and oxidative dissolution of UO<sub>2</sub> matrix**

**9:00 – 9:25** Effect of temperature on the oxidative dissolution of UO<sub>2</sub> and MIMAS MOX fuels in synthetic Callovian-Oxfordian groundwater in the presence of iron. **Matthieu Autillo (CEA, France)**

**9:25 – 9:50** Modeling of temperature effect on MOX dissolution under geologic disposal conditions. **Laurent de Windt (Mines-ParisTech, France)**

**9:50 – 10:15** XPS/UPS studies of the redox-behavior of Pd-doped and undoped UO<sub>2</sub> thin-films exposed to H<sub>2</sub>O-plasma exposure under UHV conditions. **Daniel Olsson (KTH Royal Institute of Technology, Sweden)**

**10:15 – 10:45** Coffee break

**10:45 – 11:10** Radiation-induced oxidative dissolution of UO<sub>2</sub> – Mechanistic aspects and impact of oxidant speciation. **Mats Jonsson (KTH Royal Institute of Technology, Sweden)**

**11:10 – 11:35** The UO<sub>2</sub> oxidative dissolution mechanism under water radiolysis investigated by Raman spectroscopy and <sup>18</sup>O isotopic labeling. **Christophe Jegou (CEA, France)**

**11:35 – 12:00 CONCLUSIONS & CLOSURE (distribution of packed lunches)**

## POSTER SESSION

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Preparation of heterogeneous model compounds of (U,Th)O<sub>2</sub> doped with FPs for dissolution purposes. **Lorenzo Callejon (ICSM, France)**

ESEM-monitored dissolution of (U,Th)O<sub>2</sub> heterogeneous mixed oxides for spent fuel modelling. **Laurent Claparède (ICSM, France)**

The role of Eu on microstructure and behaviour of UO<sub>2</sub> during interim storage. **Nieves Rodríguez-Villagra (CIEMAT, Spain)**

Wet chemistry route to prepare a panel of irradiated MOx fuel model compounds. **Mathias Fulchiron (ICSM, France)**

Study of MOx fuel alteration under water unsaturated conditions. **Paul-Henri Imbert (CEA, France)**

An overview of the UK's research programme for the geological disposal of spent Advanced Gas-cooled Reactor fuel. **Luke T. Townsend (Nuclear Waste Services, UK)**

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