

Webinar Invite

Join us on January 28, 2021 <8:30 am EST (UTC-5)>

MOX FUEL FOR ADVANCED REACTORS

Today, knowledge on MOX fuel behavior in fast neutron reactors comes mainly from feedback on SFRs that have operated in the past in Europe, USA, Japan and are still in service in Russia, India and China. The GENERATION-IV systems (SFR, GFR, LFR, FSMR...) with the associated fuel cycle strategy have been chosen to face the requirements of safety, non-proliferation, sustainability and waste minimization. This completion is possible thanks to the flexibility of fast neutron systems: they offer the possibility of using plutonium and uranium coming from spent fuel, making the best use of resources while reducing waste. Thus $(U,Pu)O_2$ has proved to be the most ready candidate to achieve these performances in reactor and during the fuel cycle. Mox fuel is suitable for example for multirecycling, isogeneration, burning or breeding plutonium through adjustment of Pu

concentration. Taking into account a wide range of fuel composition (Pu content: 20 to 45%), irradiation conditions and applying the safety criteria, we will present the state of the art on MOX fuel for GENIV systems with respect to knowledge and qualification.

The knowledge on $(U,Pu)O_2$ will be presented under the aspects of material properties and fuel behavior under irradiation with post irradiation examinations and modelling. The methodology of MOX qualification will be detailed with TRL (Technological Readiness Level) scale evaluation and the need to extend the qualification area in order to cover all design, composition and situations described above.

The support of the international organizations (GIF, OECD/NEA, IAEA, EURATOM) to scientific and technological issues will be assessed.

Free webcast!



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Who should attend: policymakers, managers, regulators, students, general public

Upcoming Webinars

25 February 2021
Overview of Waste Treatment Plant, Hanford Site, Dr. David Peeler, PNNL, USA

25 March 2021
Introducing new Plant Systems Design (PSD) Code, Prof. Nawal Prinja, Jacobs, UK

22 April 2021
Experience of HTTR licensing for Japan's New Nuclear Regulation, Mr. Etsuo Ishitsuka, JAEA Japan



Dr. Nathalie Chauvin is working at CEA Cadarache IRESNE in the fuel Studies Department as an International Expert on fuels for fast reactors. She worked for a long time on the minor Actinides transmutation program, participating to the optimization of the fuel design, the irradiation experiments and the synthesis reports. Then she was project manager for the development of very innovative fuels for the Gas cooled Fast Reactor with oxide/carbide fuels, refractory cladding including ceramic composites one for pin or plate type fuel element. She is now in charge of international cooperations devoted to fast reactor fuels development as 1) Chair of the Working Party on the Fuel Cycle at OECD/Nuclear

Science Committee; 2) Chair of the Expert Group on Innovative Fuel at OECD/NSC/WPFC; 3) GIF French representative in the GFR system – Fuels & material; 4) Project manager of PUMMA (Plutonium Management for More Agility at EURATOM); 5) Leader of fuel properties workpackage in the project ESFR-SMART; 4) French representative in the CRP on Fuels and Materials for Fast Reactors at the IAEA. She is also participating in several activities in different scientific committees of international conferences (IEMPT, FR GLOBAL), and she is the CEA counterpart in several bilateral collaborations with other international scientific organizations devoted to MOX fuel.