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for the next GEN IV webinar

Comparison of 16 Reactors Neutronic

Performance in Closed Th-U and U-Pu Cycles

Just as in all other industries, sustainability is vital to nuclear energy production. Recycling of nuclear fuel contributes to the environmental and social pillars of that sustainability because it simultaneously improves natural resources utilization and waste minimization. This webinar provides additional insight to the consequences of repetitive fuel recycling and compares selected reactors based on their neutronics performance in the closed Th-U and U-Pu cycles.

Because the closed fuel cycle has been discussed in several previous GIF webinars, this presentation focuses on less common perspectives. The closed fuel cycle will be presented as a Bateman equation eigenstate. In several cases, the eigenstate will be achieved by irradiation of subcritical fuels. It will be shown that all reactors in the respective fuel cycle have, by chance, the same average neutron production per fission. Hence, the usual measure $\eta-2$ will be replaced by fission probability discussion. Although the Bateman equation eigenstate in this comparative study is reached without fission products, their role in the closed cycle will be addressed.

Free webcast

June 24, 2020 at 8:30 am (EDT) (UTC -4)



Register NOW at
<https://attendee.gotowebinar.com/register/92007539407905035>

Who should attend: policy makers, managers, regulators, students, general public

Meet the Presenter...

Dr. Jiri Krepel is a senior scientist in Advanced Nuclear Systems group of Laboratory for Scientific Computing at Paul Scherrer Institute (PSI) in Switzerland. He earned his PhD in 2006 at the Czech Technical University (CTU) Prague / Helmholtz-Zentrum Dresden-Rossendorf for his thesis entitled "Dynamics of Molten Salt Reactors (MSR)." At PSI, he is responsible for fuel cycle analysis and related safety parameters of Gen IV reactors. Dr. Krepel is the coordinator of the PSI MSR research and represents Switzerland at the GIF MSR project. He has experience in the neutronics of liquid-metal and gas-cooled fast reactors and in neutronics and transient analysis of thermal and fast MSRs. He has participated in the following national and international R&D programs: MOST, ELSY, EUROTRANS, GCFR, ESRF, GoFastR, LEADER, PINE, ESNII+, SAMOFAR, ESRF-SMART, and SAMOSA FER.



The Generation IV International Forum invites you to attend web-based lectures on the next generation of nuclear energy systems and other cross-cutting subjects. Join internationally recognized subject matter experts and leading scientists in the nuclear energy arena for these short presentations.

Upcoming Webinars

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|-------------------|-------------------------------------------------------------------------------------------------------------|
| 29 July 2020 | Overview of Small Modular Reactor Technology Development, Dr. Frederik Reitsma, IAEA |
| 26 August 2020 | Overview and Status Update on Molten Salt Reactor Technology Development in the US, Dr. David Holcomb, ORNL |
| 22 September 2020 | Integrated Energy Systems Laboratory Initiative, Dr. Shannon Bragg-Sitton, INL |

For more information, please contact: Patricia Paviet at patricia.paviet@pnnl.gov or visit the GIF website at www.gen-4.org