Contribution ID: **23141** Type: **Paper**

Past, present and future of research reactor(s) in Slovenia

Tuesday, 14 November 2023 15:30 (20 minutes)

The TRIGA Mark II research reactor at the Jožef Stefan Institute in Slovenia, achieved first criticality in 1966. Since then the reactor has been playing an important role in developing nuclear technology. The reactor has been mainly used for research, education of university students, training of operators of the Krško nuclear power plant (start of operation in 1983) and other nuclear specialists, isotope production, and beam applications. Despite the age of the reactor, there is a wide range of research activities going on in the three main areas. 1) Reactor Physics activities are related to verification and validation of computer codes and nuclear data, testing and development of experimental equipment used for core physics tests at the Krško NPP, neutron radiography, neutron activation studies, development of bio-dosimeters, radiation hardness studies, safeguards activities. 2) Some of the environmental studies are using reactor for neutron activation analyses and for production of radioactive tracers. 3) Reactor is being used by particle physics department for radiation hardness studies of ATLAS detector in CERN. The future of nuclear technology in Slovenia is focused on new NPPs, while the research community is looking forward to a possible new nuclear reactor. The basic initiatives are at a very preliminary stage: the primary choice is dual-core pool-type reactor, with a zero-power core and a separate MW-size core, cooled and moderated with light water. Such a reactor will be capable of supporting the European fleet of existing and future nuclear power plants, including small modular reactors based on pressurized water reactor technology. Another option would be hosting one or more micro reactors with electrical and/or heating power producing capability. In this way the knowledge and infrastructure available for research and development could offer stronger support towards demonstration of prototype small modular reactors in prototype future electrical grids.

Speaker Bio

Primary authors: TISELJ, Iztok (Jozef Stefan Institute, Slovenia); Mr MALEC, Jan (Jozef Stefan Institute, Slovenia); Prof. CIZELJ, Leon (Jozef Stefan Institute, Slovenia); Prof. SNOJ, Luka (Jozef Stefan Institute, Slovenia)

Presenter: TISELJ, Iztok (Jozef Stefan Institute, Slovenia)

Session Classification: Day 2 Parallel Session - I : Research Reactors

Track Classification: Research Reactors