



Contribution ID: 10

Type: Invited oral

### **DICER: A new instrument at LANSCE to constrain neutron capture rates on radionuclides**

*Monday, 8 July 2024 16:45 (30 minutes)*

With very few exceptions, direct measurements of neutron capture rates on radionuclides have not been possible. A number of indirect methods have been pursued such as the surrogate method [1], the  $\gamma$ -ray strength function method [2,3], the Oslo method [4-7] and the  $\beta$ -Oslo method [8]. Substantial effort has been devoted to quantify the usually large systematic errors that accompany the results from these techniques. A new instrument has been recently developed at the Los Alamos Neutron Science Center (LANSCE) to provide more accurate data on several radionuclides relevant to nuclear criticality safety, radiochemical diagnostics, astrophysics, nuclear forensics and nuclear security, by measuring the transmission of neutrons through radioactive samples and studying resonance properties. The Device for Indirect Capture on Radionuclides (DICER) [9-11] and associated radionuclide production at the Isotope Production Facility (IPF) [12, 13], both at LANSCE, as well radioactive sample fabrication, have been under development the last few years. A description of the new apparatus, data on a few mid-weight stable isotopes and efforts on radionuclide measurements will be presented.

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**Session Classification:** Facilities I

**Track Classification:** Experimental facilities