

PURDUE MSE SEMINAR

TUESDAY, AUGUST 8TH, 2023 | 10:30AM SEMINAR | ARMS 3115



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“Application of Ion Beams in Materials Research”

Abstract: Application of ion beams in materials research, governed by fundamentals in ion-solid interactions, ranges from materials characterization with ion beam analysis techniques such as Rutherford backscattering spectrometry, materials synthesis and surface modification by ion implantation, and radiation effects in materials through ion irradiation. Besides basic research, accelerator ion beams are also used to emulate neutron irradiation environments in nuclear reactors, solar winds in space environments, and alpha emissions in actinide research. In this presentation, I will first describe ion beam research capabilities at the Ion Beam Materials Laboratory in Los Alamos, followed by several specific research examples where ion beams are used. A brief outlook is also presented on where new materials research activities could be enhanced or enabled by new ion beam capabilities based on accelerators.

Biography: Yongqiang Wang is the team leader for the Radiation Sciences Experimental (RSE) team in MST-8 at LANL. The RSE team’s efforts are to carry out basic radiation damage science, nuclear energy R&D, and ion beam materials research in support of core missions in materials discovery and nuclear energy. He also serves as Director of Ion Beam Materials Laboratory (IBML), leading the team’s efforts to perform fundamental and applied research with energetic ion beams to support internal and external research activities including from DOE Center for Integrated Nanotechnologies (CINT) users. He currently serves as editor for Nuclear Instruments and Methods in Physics Research: Beam Interactions with Materials and Atoms (NIMB) and also as co-organizer of Biennial International Conference on Application of Accelerators in Research and Industry (CAARI). He has authored/coauthored over 380 publications, including two US patents and two books on ion beam materials research.



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