

Establishing a Strong Nuclear Materials Foot Print at UNM

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Abstract:

In this talk, I will present my accomplishments in research, teaching activities and service to UNM in the last 2 years as part of my Mid-Probationary Review. The talk will focus on research but teaching activities and service will also be covered.

Advanced nuclear reactors with improved safety, economics and proliferation resistance requires advanced materials that can sustain demanding environments including very high doses and elevated temperatures while in contact with highly corrosive coolants. In this presentation, the limitations of the traditional materials and experimental techniques will be discussed followed by promising candidate alloys, advanced manufacturing and experimental testing techniques to qualify these alloys for nuclear applications. Specifically, our group's efforts on the development of nanostructured bulk composites and advanced ferritic alloys together with advanced manufacturing techniques will be discussed.

The research on nuclear materials requires fundamental knowledge on materials science and radiation damage effects on materials. I have been teaching Radiation Effects in Materials course for the last two years that introduces the problems, challenges, and opportunities in materials research for nuclear applications. This will be a good opportunity for audience to learn about the content of this course for future considerations.

Bio:

Dr. Anderoglu is an assistant professor in the Department of Nuclear Engineering at UNM. His current major research interests center on advanced alloy development for nuclear applications, advanced manufacturing techniques, radiation damage in materials and structure-property relations. Dr. Anderoglu is the author/co-author of 35 peer reviewed publications, 1 book chapter and more than 10 technical reports. Dr. Anderoglu received his BS degree in mechanical engineering from Bogazici University, MSc and PhD degrees in mechanical engineering and materials science and engineering respectively from Texas A&M University. He worked at Los Alamos National Laboratory for 6 years prior to joining UNM.