



Ramprashad Prabhakaran

Ramprashad Prabhakaran Lends Expertise to Examine U-Mo Monolithic Fuel

Lynne Robinson

young professional technical notes

This article is the latest in an occasional feature series highlighting the scientific interests and professional accomplishments of an early career TMS member who has contributed to the technical content of the current issue of *JOM*. Development of this feature series is a special project of the TMS Young Professionals Committee. For additional information, contact Lynne Robinson, *JOM* Magazine Editor, at lrobinson@tms.org.

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Ramprashad Prabhakaran, materials scientist at Pacific Northwest National Laboratory, has been involved with the development of advanced fuels and materials for nuclear applications since his graduate school days at the University of Nevada, Las Vegas. “Nuclear materials research and development has many challenges that need to be addressed due to complex requirements and aggressive service conditions,” he said, while discussing what drew him to this particular field. “As a materials scientist, it is a great opportunity to collaborate with other researchers and come up with solutions.”

For the December 2017 issue of *JOM*, Prabhakaran is the *JOM* advisor for the topic, U-Mo Monolithic Fuel for Nuclear Research and Test Reactors—a role that he feels enables these necessary collaborations by “providing a platform for researchers to exhibit and discuss their research, in addition to sharing the challenges and solutions.” He chose to work on this topic due to his own involvement in the research and development of processing and fabrication techniques for U-Mo monolithic fuel. Of particular interest to him recently has been evaluating mechanical behavior, microstructural characteristics and corrosion behavior of U-Mo fuel and developing processing-structure-properties correlations.

“Significant efforts are ongoing to develop new nuclear fuels to allow research and test reactors to use low-enriched uranium fuel instead of high-enriched uranium fuel without significant

loss in performance in order to address nuclear proliferation issues,” Prabhakaran said. “To effectively lead this pursuit, new developments in processing and fabrication of the fuel elements have been initiated, resulting in a better understanding of material behavior before and after irradiation.”

In the area of power reactors, Prabhakaran sees exciting possibilities in efforts to develop accident tolerant fuel and cladding materials for light water reactors.

Prabhakaran has already distinguished himself in nuclear materials research, starting with two U.S. Department of Energy Graduate Research Fellowships and other awards and honors that he received as a graduate student. He began his involvement with TMS as a student and has continued to volunteer extensively as a young professional. In 2015, he was named the Structural Materials Division (SMD) TMS Young Leaders Professional Development Award recipient and was selected by TMS to participate in the Emerging Leaders Alliance that same year.

“I have volunteered for TMS across the spectrum of activities, including technical committees, the Young Professionals Committee, SMD council, publications, outreach, professional development, symposia organization, and chairing sessions,” he said. “In today’s world, an engineer or scientist needs to have excellent leadership, networking and soft skills, in addition to technical expertise. By being keenly involved with various TMS activities, I have had the opportunity to further sharpen these skills.”