KTH SOLID MECHANICS SEMINAR; Thursday, October 4th, 15.15; KTH Solid Mechanics Seminar room

Jean Smith "Strategies for Obtaining High Fluence Materials to Assess Irradiation-Assisted Degradation of Nuclear Power Plant Internals"

As nuclear power plants operate longer and neutron fluence levels increase, the effects of irradiation-assisted damage (IAD) become more likely and are an important consideration for ensuring safe, long-term operation of nuclear power plants. A comprehensive understanding of IAD is important for ensuring that the structural integrity of reactor internal components can be maintained such that they perform their intended safety functions. Understanding IAD in reactor internal components is particularly challenging due to the extremely high fluences expected for stainless steel components during operation up to 60 and even 80 years. It is difficult to obtain or develop irradiated materials for testing that have been exposed to these high fluences. This presentation will discuss potential approaches that can be used to evaluate the effects of IAD on reactor internal components at high fluence levels.

Dr. Jean Smith is a Principal Technical Leader in the Primary Systems Corrosion Research (PSCR) Program at the Electric Power Research Institute (EPRI) where her work focuses on irradiated materials testing, environmentally-assisted fatigue, and failure analysis support. Previously, Dr. Smith was a corporate engineer at Exelon, the largest nuclear plant owner in the U.S., providing support to the nuclear fleet in the areas of materials degradation management and corrosion prevention. She also held a graduate research appointment at Argonne National Laboratory where she investigated the reduction of fatigue life of austenitic stainless steels exposed to light water reactor environments. Dr. Smith began her career in the petroleum industry as a metallurgist for Texaco Research and Development supporting all aspects of petroleum production including exploration, refining, and finished products.

Dr. Smith holds a Bachelor of Science in metallurgical engineering from Missouri University of Science and Technology and Master of Science and doctorate degrees in materials science and engineering from Rensselaer Polytechnic Institute. She is a registered professional engineer in the state of Illinois.