

Webinar Invite

Join us on September 28, 2022, 8:30 am EDT (UTC-4)

Development of In-Service Inspection Rules for Sodium-Cooled Fast Reactors Using the System Based Code Concept

Effective and efficient in-service inspection (ISI) is crucial to maintain safety of nuclear power plants and to suppress operation costs which affect the power generation costs directly. Hence, ISI rules need to be developed rationally by considering relevant features of the reactor type and design of an individual nuclear power plant. Sodium-cooled fast reactors (SFRs) have several desirable features such as excellent compatibility between purity-controlled sodium and structural materials while traditional volumetric and surface tests are not as easily performed as in light water reactors due to the limited accessibility to components containing the sodium coolant. In this Webinar, development of ISI rules for SFRs using the System Based Code (SBC) concept is introduced. The SBC concept consists of three parts: 1) design to reliability target that must be met throughout the service life, 2) margin exchange among the various technical areas of concern such as design, inspection, fabrication, and fitness for service, and 3) expand technical options by the timely adoption of newly developed technologies that are not in current codes and standards. Such a flexible and consistent concept is suitable to develop ISI rules by taking account of individual features of SFR plants. A unique logic flow to determine ISI requirements by using reliability targets for components is discussed, and the procedure to derive the reliability targets from plant safety requirements and to evaluate corresponding structural reliability is presented.

Free webcast!



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Who should attend:
policymakers, managers,
regulators, students, general
public



Dr. Shigeru TAKAYA is a principal researcher of Fast Reactor Cycle System R&D Center of Japan Atomic Energy Agency. He earned his Doctor of Engineering degree from the University of Tokyo, Japan, in 2003. His main areas of research interests are structural integrity evaluation at elevated temperatures, maintenance technologies for SFRs, and optimization of design and ISI requirements on SFRs through plant life cycle based on the SBC concept. He also works on development of codes and standards for these fields and participates in several committees of ASME as well as JSME. He serves as the chair of Subgroup on Elevated Temperature Design in JSME, and also the chair of ASME/JSME Joint Working Group on RIM Processes and SBC in ASME.

Upcoming Webinars

26 October 2022, Sodium Integral Effect Test Loop for Safety Simulation and Assessment (STELLA), Dr. Jewhan Lee, KAERI, ROK

28 November 2022, Visualization Tool for Comparing Energy Generation Options, Professor Mark Deinert, Colorado School of Mines, USA

14 December 2022, The Mechanisms Engineering Test Loop (METL) facility at Argonne National Laboratory, Dr. Derek Kultgen