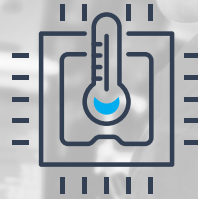


September 30, 2021 Virtual Workshop

Sensors for High Temperature Nondestructive Evaluation and Online Monitoring



A new key research initiative at EPRI is focusing on technology for Nondestructive Evaluation (NDE) and online monitoring for high temperature applications. As an important part of this effort, we are looking to build a network of vendors and technology researchers to facilitate collaborations in this area.

We are also hosting a technical workshop as part of this initiative. The objective of the workshop is to identify promising sensor technologies and solutions. The workshop will help increase awareness and facilitate collaboration between EPRI and others. EPRI has three ongoing projects which comprise the context of this workshop, as described in the text below.

NDE inspections targeting 350C - Socket welds: Stainless steel socket welds need to be inspected during plant operations at temperatures of 350C. Conventional inspections are performed with UT phased array while the plant is offline. Inspection during operation will enable better decision-making options for plant engineers. This project involves demonstrating an inspection on a component at high temperature.

Online monitoring targeting applications at 350C - ISI crack growth: Flaws in primary loop welds may not require repair if a monitoring technique can show that growth rates are zero or otherwise acceptable. This project demonstrates a phased array or UT technology solution that can be installed to monitor crack growth at 350C. A key requirement of this application is that the probe(s) must survive high temperature and thermal cycling. Wedge materials suitable for extended durations at high temperatures are also of interest. This potential collaboration involves identifying and testing candidate technologies.

Online monitoring targeting applications up to 750C – Advanced reactors: Advanced reactors promise efficient and safe operation and will operate at very high temperatures. To prevent solidification of reactor coolant in some designs, elevated shut down temperatures will be maintained. Monitoring of safety critical items at operating and shut down temperatures will be pursued. While ultrasonics provides suitable options for many applications at lower temperature, we are exploring both UT and non-UT NDE techniques that can provide some level of material integrity insights at high temperatures. This potential collaboration involves a 2 year initial phase to identify promising technologies and increase technology readiness levels.

How to participate:

EPRI invites interested organizations and personnel to attend and/or present in this workshop. If interested in attending, please respond to Luke Breon, lbreon@epri.com. To request a presentation opportunity in this workshop, please provide a concise summary (up to one page) on how technology you work on or otherwise represent fits into the described focus areas. Please include details on the technology readiness and the approximate level of effort needed for field deployment.

Summary Submittal Deadline: August 20th, 2021