

# International Conference on Fast Reactors and Related Fuel Cycles: Next Generation Nuclear Systems for Sustainable Development (FR17)



Contribution ID: 78

Type: POSTER

## Assessment of Creep Damage Evaluation Methods for Grade 91 Steel in the ASME and JSME Nuclear Codes

*Wednesday 28 June 2017 17:50 (1h 10m)*

Grade 91 steel is a Code-approved construction material in the ASME and JSME nuclear codes. Applications of Grade 91 steel include intermediate heat exchanger, piping, steam generator tubing and shell, etc. for sodium fast reactor systems. Current creep-fatigue damage evaluation method in the ASME and JSME nuclear code differs in the method to calculate creep damage. In the simplified inelastic approach of the ASME Code, the creep damage is calculated using the isochronous stress-strain curves. In the JSME Code, the creep damage is evaluated using a creep strain equation combined with the strain hardening formulation. In this paper, these two approaches will be reviewed and creep damage predictions from illustrative examples using these two approaches will be presented. Approaches to possible harmonization will be discussed.

### Country/Int. Organization

USA/Argonne National Laboratory

**Author:** Dr SHAM, Ting-Leung (Argonne National Laboratory)

**Co-author:** Dr ASAYAMA, Tai (Japan Atomic Energy Agency)

**Presenter:** Dr ASAYAMA, Tai (Japan Atomic Energy Agency)

**Session Classification:** Poster Session 2

**Track Classification:** Track 2. Fast Reactor Operation and Decommissioning