

European Networks

Computational Structural Fracture Mechanics Team

The ORNL Modeling and Simulation Group (MSG) develops sophisticated numerical solutions for a wide range of scientific, engineering, and operational applications. MSG's core competency is computational physics and engineering, and within our Computational Structural Fracture Mechanics Team we are participating as an "in-kind" contributor to three European EURATOM Networks:

- STYLE – *Structural integrity for lifetime management – non-Reactor Pressure Vessel components*
- NESC VII – *Network for Evaluation of Structural Components.*
- PERFORM 60 - *Prediction of the Effects of Radiation for Reactor Pressure Vessel and in-core Materials using multi-scale modeling – 60 years foreseen plant lifetime.*

MSG Contributions to European Networks

- STYLE: Perform three-dimensional finite-element (FE) analysis to determine an optimum inner surface flaw for insertion in a ferritic pipe that will be tested under pure bending.
- NESC VII: Perform three-dimensional FE analysis of warm pre-stress fracture mechanics experiments on large-scale cruciform specimens.
- PERFORM 60: Develop a theoretical, multi-scale model for the prediction of fracture toughness of ferritic steels in the transition temperature region.

These activities illustrate our computational capabilities for a broad range of R&D, industrial, homeland defense, and military applications. We welcome the opportunity to discuss your potential applications and ways MSG can contribute to a solution.

Point of Contact:

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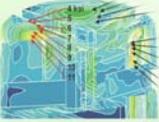
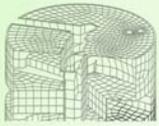
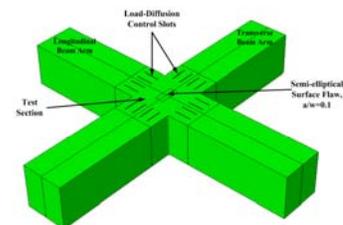
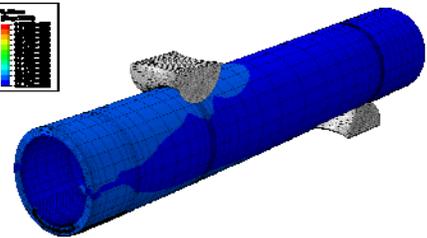
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