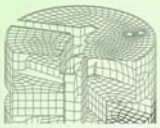
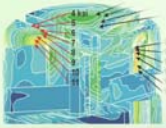




Modeling and Simulation Group

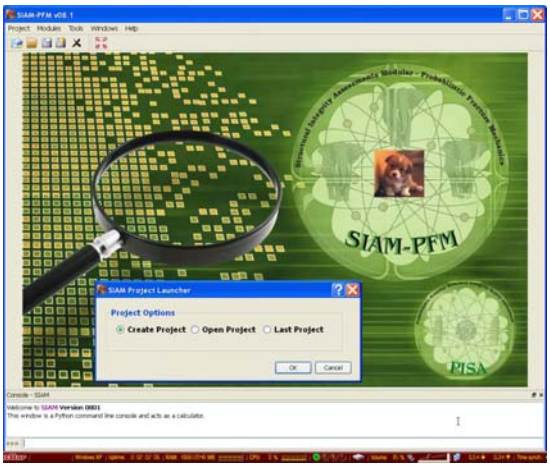
Structural Integrity Assessment Modular - Probabilistic Fracture Mechanics – SIAM-PFM

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 have been developing a new computer code for research in the field of computational fracture mechanics. Funded by the U.S. Nuclear Regulatory Commission's Office of Nuclear Regulatory Research, the ***Structural Integrity Assessment Modular – Probabilistic Fracture Mechanics*** (SIAM-PFM) computer program is an implementation in code of a general computational platform for nuclear power plant (NPP) primary circuit components that provides a systematic basis for risk-informed assessments.

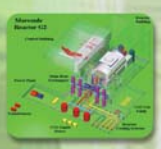
Main Characteristics

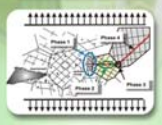
SIAM-PFM combines advanced fracture mechanics techniques applicable to pressurized structures with modern approaches to probabilistic assessments of structural integrity. SIAM-PFM is currently being extended to include a module to study the extremely low probability of rupture (xLRP) in NPP cooling system piping.

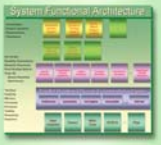


SIAM-PFM

SIAM-PFM enables contributions by multiple organizations within a modular software architecture. MSG is uniquely positioned to address this challenge in that it provides a confluence of theoretical modeling and high performance computing capabilities. We welcome the opportunity to discuss your potential applications and ways SIAM-PFM can contribute to a solution.







Point of Contact:

Richard Bass
Team Lead, Computational Structural Fracture Mechanics Team
Oak Ridge National Laboratory
P.O. Box 2008, MS-6085
Oak Ridge, TN 37831-6085
Phone: 865-576-8571
FAX: 865-576-0003
E-mail: bassrb@ornl.gov
http://scfm.ornl.gov/