Contribution ID: **682**   Type: **Poster**

Advanced capabilities of multi-functional calculation program SuperMC3.2 for complex nuclear system

Wednesday 24 October 2018 08:30 (20 minutes)

Super Multi-functional Calculation Program for Nuclear Design and Safety Evaluation, SuperMC, is a full-function neutronics simulation software system including inner-coupled calculations among efficient radiation transport, depletion, activation and shutdown dose. Its advanced capabilities include CAD/image-based accurate modeling for complex irregular geometry, intelligent data analysis based on multi-D/multi-style visualization and network collaborative nuclear analysis on cloud computing platform. Besides, several advanced radiation transport methods such as global weight window generator (GWWG) were proposed to solve the key problems for radiation protection in fusion system, such as deep penetration problem, sky scattering problem.

SuperMC has been verified and validated by more than 2000 benchmark models and experiments including HCPB mock-up experiments in SINBAD, IAEA-Activation Calculation Benchmark (ACB), FNG-ITER SDR experiment and so on. And it was also applied in the neutronicis analysis of ITER, DEMO, etc.

Country or International Organization

China, People's Republic of

Paper Number

FIP/P3-55

Author: Prof. HU, Liqin (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China)

Co-authors: Dr LI, Bin (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr WU, Bin (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr SUN, Guangyao (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr SONG, Jing (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr ZOU, Jun (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr WANG, Lei (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr HAO, Lijuan (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr HE, Peng (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Prof. LONG, Pengcheng (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr GAN, Quan (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Dr YU, Shengpeng (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China); Mr WU, Yican (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China)

Presenter: Dr HAO, Lijuan (Key Laboratory of Neutronics and Radiation Safety, Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China)

Session Classification: P3 Posters