Service de Physique Nucléaire

Séminaire

le vendredi 14 juin 2013 à 11h00

CEA Saclay, Orme des Merisiers, Bât. 703, Salle 135

Overview of Particle and Heavy Ion Transport Code System PHITS

Tatsuhiko Sato and Shintaro Hashimoto

Japan Atomic Energy Agency (JAEA)

A general purpose Monte Carlo Particle and Heavy Ion Transport code System, PHITS, is being developed through the collaborations between JAEA and several institutes in Japan and Europe, including CEA/Saclay. PHITS can deal with the transport of nearly all particles, including neutrons, protons, heavy ions, photons, and electrons, over wide energy ranges using various nuclear reaction models and data libraries. All components of PHITS such as its source, executable and data-library files are assembled in one package and then distributed to many countries via OECD/NEA databank, RSICC, and RIST. More than 1,000 researchers have been registered as PHITS users, and they apply the code to various research and development fields such as nuclear technology, accelerator design, medical physics, and cosmic-ray research. Recently, we upgraded many aspects of the PHITS code and released the new version as PHITS2.52. In the new version, higher accuracy of the simulation was achieved by implementing the latest nuclear reaction models such as Liège intra-nuclear cascade version 4.6 (INCL4.6) and a statistical multi-fragmentation model (SMM). Development of a new nuclear reaction model has been initiated by combining INCL4.6 and a distorted-wave Born approximation (DWBA) calculation. An overview of the PHITS code will be presented at the seminar, together with some detail descriptions about the recent improvements of its nuclear reaction models.

Le café sera servi 10 minutes avant