

THE PRESENT STATUS OF THE PHITS CODE

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Abstract

Particle and heavy ion transport code is an essential implement in the design study of accelerator facilities for various purposes such as radiotherapy, spallation neutron sources and rare isotopes production, and also in space technology. We have therefore developed multi-purpose particle and heavy ion transport Monte Carlo code system, PHITS (Particle and Heavy Ion Transport code System), based on the NMTC/JAM code. PHITS has three important ingredients which enable us to simulate (1) hadron-nucleus reactions with energies up to 200 GeV, (2) nucleus-nucleus collisions from 10 MeV/nucleon up to 100 GeV/nucleon, (3) transports of heavy ions, all hadrons including low energy neutrons down to 10^{-5} eV, and leptons. In this paper, we report the details of the models incorporated in the PHITS code, and introduce a variety of its application fields. The present status of the code is described, including recent development of the code performed in the collaboration of RIST and JAEA (Japan), GSI (Germany) and Chalmers University of Technology (Sweden).