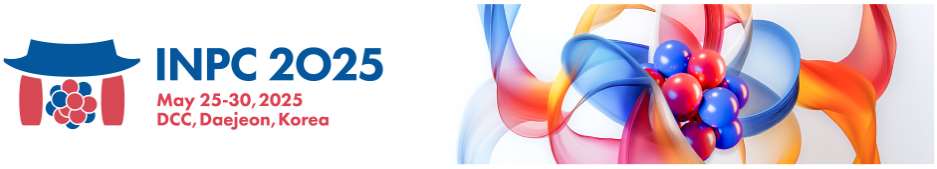

Contribution ID: **502** Type: **Invited Talk for Parallel Sessions (Invitation Only)**

Introduction of macroscopic radiation simulation code PHITS

Thursday, 29 May 2025 16:30 (25 minutes)

Particle and Heavy Ion Transport code System (PHITS) is a Monte Carlo macroscopic radiation simulation code in complex three-dimensional geometries[1]. PHITS is a unified program which is intended to treat transport of various particles such as photons, electrons, neutrons, protons, and heavy ions, in wide energy range. PHITS has been used in a variety of practices such as shielding designing of the accelerator facilities, dose evaluation for radiation treatment planning and radiation protection, radiation dosimetry study in space and geoscience, and so on. PHITS contains many different theoretical models and data libraries to simulate necessary calculations in transport process such as stopping power calculation, elastic and inelastic scatterings, nuclear reactions, statistical decays, and so on. The models and data libraries are switched according to the transporting particle, its energy and the medium. PHITS is a tool to connect microscopic nuclear models or nuclear data libraries with macroscopic radiation transport simulations.

We will present how PHITS compute the transport process using those models and data libraries. The accuracy of the PHITS simulation depends on the accuracy of the contained models and data libraries. We are always active to incorporate new models and data libraries into PHITS to achieve better description of physical phenomena so any suggestions and cooperation are very welcome.

[1] T. Sato et al., “Recent improvements of the Particle and Heavy Ion Transport code System - PHITS version 3.33”, J. Nucl. Sci. Technol. 61, 127-135 (2024)

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