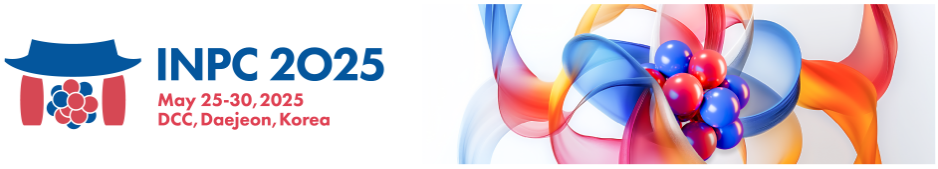

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Simulation of Cosmic Ray-Atmosphere Interactions and Study of ^{7}Be Production Rate

This study focuses on simulating the production of beryllium-7 (^{7}Be), a radioactive isotope generated in Earth's atmosphere, using Geant4 and the Cosmic Ray Library (CRY), and comparing the results with experimental data. ^{7}Be is primarily produced when cosmic rays interact with nitrogen nuclei in the atmosphere, and its concentration varies with solar activity and seasonal changes. By studying these interactions, we can gain valuable insights into cosmic ray-atmosphere interactions and radiation environments in Earth's atmosphere. In this study, we analyze the interaction of ^{14}N nuclei with protons using Geant4 and compare the simulated production rates with experimental data to assess the reliability of the simulation.

Primary author: LEE, Seunghoon (PKNU)

Co-authors: AHN, Jung Keun (Korea University); Prof. NAM, Seungil (PKNU); Prof. KIM, Shin Hyung (KNU)

Presenter: LEE, Seunghoon (PKNU)

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