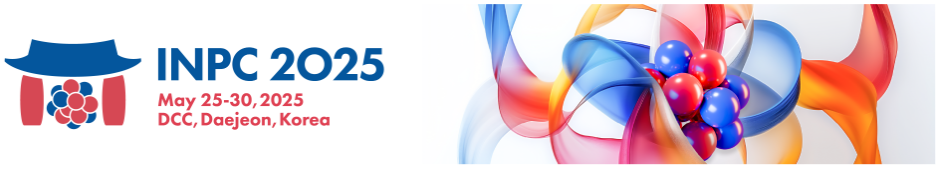

Contribution ID: **496** Type: **Contributed Poster Presentation**

NEEC Simulation with Application of Cascade Method in Ion-target Interaction

The theoretical modeling of nuclear structures and their excitation mechanisms poses significant challenges. One fundamental process is Nuclear Excitation by Electron Capture (NEEC). Recent advancements in nuclear theory have employed first-principles simulations to predict NEEC rates across various experimental setups. In this paper, we propose an experimental approach using the cascade method to search for the long-anticipated NEEC process in ion-target bombarding experiments. Our simulations indicate that this approach facilitates a high signal-to-noise ratio and significantly reduces noise from Radiative Recombination (RR) and Coulomb Excitation (CE), thereby providing a more reliable way for NEEC detection compared to conventional techniques.

Consent

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Session Classification: Poster Session

Track Classification: Nuclear Reactions