



Contribution ID: 59

Type: **Poster Presentation**

Radiative Capture $d(\alpha, \gamma)^6\text{Li}$ Reaction in Cluster Effective Field Theory

The $d(\alpha, \gamma)^6\text{Li}$ reaction that produces ^6Li was the primitive reaction in the standard BBN framework. As a consequence of the importance of the reaction, we study the radiative capture process of deuteron on alpha through the cluster Effective Field Theory. In detail, we outline the calculation of the amplitude and S-factor of the capture process leading to the formation of ^6Li . The contribution of two-body currents is also studied. In order to evaluate the accuracy of the approach, we compare the S-factor of the dominant transitions (E1, E2) of the reaction up to next-to-leading order with the results of the model-dependent theoretical calculations and experimental data. The consistency of the results shows the strength of the EFT to describe the few-body systems in low-energy regimes.

Primary authors: Ms NAZARI, Farzaneh (Department of Physics, K. N. Toosi University of Technology, P.O.Box 16315-1618, Tehran, Iran); Dr RADIN, Mahdi (Department of Physics, K. N. Toosi University of Technology, P.O.Box 16315-1618, Tehran, Iran); Dr MOEINI ARANI, Mahdi (Malek Ashtar University of Technology, Tehran, Iran)

Presenter: Ms NAZARI, Farzaneh (Department of Physics, K. N. Toosi University of Technology, P.O.Box 16315-1618, Tehran, Iran)

Session Classification: Poster Session