Contribution ID: **18** Type: **Theoretical Nuclear Physics**

Consistent analyses of nuclear structures and reactions using Gamow Shell Model (GSM)

Tuesday, 8 August 2023 16:25 (15 minutes)

Jaewon Kim, Jeong-Yeon Lee, Myung-Ki Cheoun
Department of Physics and OMEG Institute, Soongsil University, Seoul 07040, Korea

The nuclear shell model is a traditional approach for describing and predicting the nuclear properties. It is based on the idea that nucleons occupy shells in the nucleus and interact with each other through a residual two-body interaction. The Gamow shell model (GSM) is an extension of the conventional shell model and uses Gamow-style many-body wavefunctions. GSM is based on Rigged Hilbert space and introduces complex-energy eigenstates. GSM is a quasi–stationary open quantum system extension of the standard configuration interaction approach for well-bound system. GSM explains bound, resonant, and non-resonant states, simultaneously, in unified bases. GSM allows for a unified treatment of nuclear structures and reactions. Calculated results using the GSM will be shown along with the description of the GSM.

Presentation type

Primary authors: KIM, JaeWon (Soongsil University); LEE, Jeong-Yeon; CHEOUN, Myung-Ki (Soongsil University)

Presenter: KIM, JaeWon (Soongsil University)

Session Classification: Young Scientist Session III