## **DREB2022** - Direct Reactions with Exotic Beams



Contribution ID: 195

Type: Oral contribution

## Study of the Coulomb dissociation of the exotic nuclei using Coulomb dynamical polarization potential

Wednesday 29 June 2022 12:20 (15 minutes)

In our recent work [1], we presented a new expression for the coulomb dynamical polarization potential (CDPP) and the electric dipole polarizability of light exotic nuclei with a two-body deuteronlike cluster structure. The Schrödinger equation for the internal motion of the exotic projectile incident on a heavy target nucleus is solved using the adiabatic approximation.

Then, this CDPP was applied to different cluster structures of <sup>6</sup>He and <sup>8</sup>He *emphasized text* and comparisons of the effect of breakup coupling and 1n stripping reaction on the elastic scattering of these projectiles from a <sup>208</sup>Pb target, at incident energies below the Coulomb barrier, has been performed [2].

In this work, this CDPP is extended to include the excitations of the projectile clusters and then, a novel method is presented to study the Coulomb dissociation of exotic nuclei at high energies. The results of the calculations are in good agreement with the Coulomb dissociation data.

We acknowledge support from the Polish National Agency for Academic Exchange (NAWA) within the Ulam Programme under Grant Agreement No. PPN/ULM/2019/1/00189/U/00001.

- 1. H. Maridi, K. Rusek, and N. Keeley, Phys. Rev. C 104, 024614 (2021).
- 2. H. Maridi, K. Rusek, and N. Keeley, accepted at Eur. Phys. J. A (2022).

## Topic

Theory

**Authors:** Dr MARIDI, Hasan (Heavy Ion Laboratory, University of Warsaw); Prof. RUSEK, Krzysztof (Heavy Ion Laboratory, University of Warsaw, ul. Pasteura 5a, Warsaw, 02-093, Poland); Prof. KEELEY, Nicholas (National Centre for Nuclear Research, ul. Andrzeja Sotana 7, 05-400 Otwock, Poland)

Presenter: Dr MARIDI, Hasan (Heavy Ion Laboratory, University of Warsaw)

Session Classification: WED2