



Contribution ID: 118

Type: Talk

Multi-neutron transfer in the scattering of ^8He at Coulomb barrier energies

Friday 6 September 2019 12:10 (20 minutes)

The study of neutron clusters in light nuclei has attracted considerable attention during recent years. Although the two-neutron system is unbound, there are evidences of its existence in exotic neutron rich nuclear systems like ^6He and ^8He [1, 2, 3]. The predominance of the dineutron configuration in the ground state of ^6He has been well established both theoretically and experimentally, but the case of ^8He is still an open question. The scattering of ^8He by ^{208}Pb has been investigated in a range of energies around the Coulomb barrier at the SPIRAL facility (GANIL, Caen, France), and the cross-sections for producing ^6He and ^4He have been measured in a large angular range (15 –165 deg. lab) [4]. In order to reproduce the data we have carried out CRC calculations for one-neutron stripping and DWBA calculations for two- and four-neutron transfer mechanisms. The relative contributions of sequential and direct transfers are discussed and compared with the experimental results.

References

1. M.V. Zhukov et al., Phys. Rep. 231, 151 (1993).
2. G.M. Ter-Akopian et al., Phys. Lett. B426, 251 (1998).
3. K. Rusek et al., Acta Phys. Pol. B49, 353 (2018).
4. G. Marquínez-Durán et al., Phys. Rev. C98, 034615 (2018).

Authors: Prof. MARTEL BRAVO, Ismael (Univ. Liverpool (UK), Univ. Huelva (Spain)); Prof. RUSEK, Krzysztof (Heavy Ion Laboratory); Prof. KEMPER, Kirby (The Florida State University); Prof. KEELEY, Nicholas (National Centre for Nuclear Research)

Presenter: Prof. MARTEL BRAVO, Ismael (Univ. Liverpool (UK), Univ. Huelva (Spain))

Session Classification: Parallel Session Friday: Nuclear Reactions

Track Classification: Nuclei