Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **288** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) Investigation of resonance states in 11Li

Monday, 7 June 2021 12:10 (10 minutes)

Understanding the structure of complex many-body nuclei is one of the central challenges in nuclear physics. The conventional shell model is capable of explaining the structure of stable nuclei, but it starts to shatter towards the driplines or rare isotopes. To explain the new trends in the shell model at the driplines, it is essential to study these exotic nuclei. Halo nuclei are prime examples of some of the unusual characteristics of rare isotopes. The development in the radioactive ion beam facilities made it possible to explore different aspects of halo nuclei. 11Li is a two-neutron halo with a 9Li core. In this study, the resonance states of the 11Li have been investigated through the deuteron scattering off an 11Li. The experiment was performed at the IRIS facility at TRIUMF with an 11Li beam accelerated to 7.3A MeV. The scattered deuterons were detected using a silicon and CsI(Tl) detector. The missing-mass technique was used to obtain the excitation spectrum. The observed resonance spectrum from inelastic scattering and the ground state of 11Li from elastic scattering will be presented that will show the excited states seen for 11Li. Their characteristics will be discussed.

Primary author: SINGH, Mukhwinder (SMU)

Co-authors: RADICH, Allison (University of Guelph); MACLEAN, Andrew (University of Guelph); DAVIDS, Barry (TRIUMF); GREAVES, Beau Gregory (University of Guelph); OLAIZOLA, Bruno (TRIUMF); SVENSSON, Carl (University of Guelph); BURBADGE, Christina; WALTER, David (TRIUMF); HACKMAN, Greg (TRIUMF); Dr RANDHAWA, Jaspreet (University of Notre Dame); Dr REFSGAARD, Jonas (Triumf/Saint Mary's University); ATAR, Leyla (Technical University Darmstadt & GSI & University of Guelph); Dr ALCORTA, Martin (TRIUMF); Mr CAVENAILE, Matheiu (Saint Mary's University); Dr HOLL, Matthias; ESKER, Nicholas (Triumf); BERNIER, Nikita (TRIUMF); Mr SUBRAMANIYAM, Pranav (Saint Mary's University); Dr JASSAL, Preetinder; KRUECKEN, Reiner (TRIUMF); KANUNGO, Rituparna (Saint Mary's University); DUNLOP, Ryan (University of Guelph); BURBANO, Sally V. (University of Guelph); BHATTACHARJEE, Soumendu Sekhar (TRIUMF); GILLESPIE, Stephen (Triumf)

Presenter: SINGH, Mukhwinder (SMU)

Session Classification: M1-5 Spectroscopy I (DNP) / Spectroscopie I (DPN)

Track Classification: Nuclear Physics / Physique nucléaire (DNP-DPN)