



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 3958

Type: **Invited Speaker** / Conférencier(ère) invité(e)

(I) Recent results from the recoil mass separator DRAGON and the mass spectrometer EMMA at TRIUMF

Wednesday 21 June 2023 10:30 (30 minutes)

To further advance the understanding of key reaction mechanism and paths in stellar nucleosynthesis and probe nuclear structure, experiments with radioactive isotopes in inverse kinematics are a vital tool to get direct information on reaction cross sections and rates. Unfortunately, the low intensities of radioactive isotope beams in relation to stable beams in combination with the extremely small radiative capture or transfer reaction cross sections of these reactions pose difficult experimental challenges. Therefore, it is advantageous to measure not only the light particle and radiation energy released by the reaction but the heavy recoil nucleus as well. With this coincident measurement technique the detector and beam background can be suppressed efficiently. Because of the inverse kinematics the heavy recoil is boosted forward in the direction of the unreacted beam and a clear separation between recoil and beam is necessary.

In this talk I will present an overview of the two devices DRAGON and EMMA installed at TRIUMF's ISAC facilities to accomplish this with vacuum mode separation by particle mass over charge. To demonstrate the broad capabilities for nuclear reaction studies with these setups, a selection of recent results, planned experiments and upgrades will be highlighted in the second half of the presentation.

Keyword-1

Nuclear Structure

Keyword-2

NA

Keyword-3

NA

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Session Classification: (DNP) W1-4 Nuclear Structure | Structure nucléaire (DPN)

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