Canadian Association of Physicists
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Contribution ID: **314** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) High-precision experimental nuclear physics with the upgraded TITAN Penning trap

Thursday 10 June 2021 16:10 (10 minutes)

On behalf of the TITAN collaboration
Nuclear-physics studies are probing into nuclear structure, nucleosynthesis and fundamental interactions, for which high precision and accurate mass measurements are critical inputs. TRIUMF's Ion Trap for Atomic and Nuclear science (TITAN) facility employs the Measurement Penning Trap (MPET) to measure masses of exotic nuclei ˜1x10-8 accuracy. To improve the resolving power and reduce statistical uncertainty in the mass measurement, a higher charge state of the ions can be used. This and other benefits of charge breeding radionuclides in an electron beam ion trap, like improved beam purification, can only be realized at TITAN. To fully leverage these advantages, MPET is undergoing an upgrade to a new cryogenic vacuum system compatible with ions in charge states over 20+. The status of the new cryogenic upgrade will be presented.

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