Abstract Submitted
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Precision Mass Measurements at the Canadian Penning Trap using a Phase-Imaging Technique[1] ANDREW NYSTROM, A. APRAHAMIAN, S.T. MARLEY, M. MUMPOWER, N. PAUL, K. SIEGL, S. STRAUSS, R. SURMAN, T. KUTA, University of Notre Dame, G. SAVARD, J.A. CLARK, A.F. LEVAND, A. PEREZ GALVAN, T. HIRSH, J. ROHRER, Argonne National Laboratory, S. CALDWELL, J. VAN SCHELT, U. Chicago, R. ORFORD, F. BUCHINGER, McGill University, G. MORGAN, K. SHARMA, U. Manitoba — Precision mass measurements at Penning Trap facilities have traditionally used a time-of-flight (TOF) technique to measure the cyclotron frequency of ions and therefore determine their masses. At the Canadian Penning Trap (CPT), this technique is able to provide mass measurements to a precision of about $\delta m/m = 10^{-8}$ with measurement times as low as 200ms. However, a new phase-imaging technique, which instead determines the cyclotron frequency by projecting the radial ion motion on a position-sensitive detector, is being implemented at the CPT. It provides at least a tenfold gain in resolving power while allowing for measurement times of less than 100ms, allowing measurements of more exotic neutron-rich nuclei from CARIBU with respect to the TOF technique. Details of its commissioning at the CPT will be discussed alongside new neutron-rich mass measurements.

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