Abstract Submitted
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Recent progress in the development of the CHIPTRAP mass spectrometer[1] NADEESHA GAMAGE, RAMESH BHANDARI, MADHAWA HORANA GAMAGE, RACHEL SANDLER, PHILIP SNOAD, MATTEW REDSHAW, Central Michigan University — At Central Michigan University we are developing a high-precision Penning trap (CHIP-TRAP) for precise mass measurements with stable and long-lived isotopes with application, for example, to neutrino mass determinations with ^{187}Re and ^{163}Ho. CHIP-TRAP will consist of a pair of hyperbolic precision measurement traps and a cylindrical capture/filter trap in a 12 T magnetic field. Ions will be produced using a laser ablation ion source and a recently commissioned Penning ion trap source. Ions will be transported to the capture trap at low-energy using electrostatic ion optics and identified via FT-ICR techniques; enabling unwanted ion species to be removed. The ion of interest will then be moved to one of the precision measurement traps. The goal is to simultaneously measure the cyclotron frequency of single ions of two different species, each confined in one of the precision measurement traps, resulting in a cancellation of magnetic field fluctuations and a reduction in statistical uncertainty. In this presentation we will report on the design, construction and operation of the ion sources and will discuss the current status of the CHIP-TRAP project including the recent installation and commissioning of the capture trap.

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