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Status of CHIP-TRAP: The Central Michigan University High-Precision Penning Trap[1] NADEESHA GAMAGE, MADHAWA HORANA, RACHEL SANDLER, RAMESH BHANDARI, MATTHEW REDSHAW, Central Michigan Univ — 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 187Re and 163Ho. CHIP-TRAP will consist of a pair of hyperbolic precision measurement traps and a cylindrical capture/filter trap located in a 12 T magnetic field. Ions will be produced using a laser ablation ion source (LAS) and transported to the capture trap at low-energy using electrostatic ion optics. In the capture trap ions will be identified via Fourier Transform Ion Cyclotron Resonance (FT-ICR) techniques, and unwanted ions will 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, via phase sensitive image charge detection techniques. This will result in a cancellation of magnetic field fluctuations and a reduction in statistical uncertainty. In this presentation we will report on the design, construction, and testing of the LAS and beam-line and on the overall status of the CHIP-TRAP project.

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