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Progress at the Penning Trap Mass Spectrometer "THe-Trap" MARTIN HOECKER, TOMMI ERONEN, JOCHEN KETTER, SEBASTIAN STREUBEL, KLAUS BLAUM, Max-Planck-Institute for Nuclear Physics, Heidelberg, Germany, ROBERT S. VAN DYCK, Department of Physics, University of Washington, Seattle, WA 98195-1560, USA — In 2008, the "University of Washington Penning-Trap Mass Spectrometer" (UW-PTMS), originally designed and built by the Van Dyck group, was moved to the Max-Planck-Institute for Nuclear Physics in Heidelberg, Germany. It was set up in a dedicated laboratory that meets both the radiation-safety requirements, and the environment-stabilization demands for a high-precision measurement of the tritium/helium-3 mass ratio. Our goal is to measure this mass ratio with a relative uncertainty of 10^{-11} , which would be more than an order of magnitude better than the previous best measurement. It would decrease the uncertainty in the tritium beta decay Q-value (an important parameter in the ongoing search for the neutrino mass by experiments such as KATRIN) by the same factor. In order to emphasize the specialization of our experiment with regard to Tritium and ³Helium, it was renamed to "THe-Trap". THe-Trap features a double Penning-trap for rapid ion exchange, an external ion source to minimize trap contamination, a novel Zener-based voltage source, and active as well as passive stabilization of temperature, pressure and the magnetic field of the superconducting magnet. An overview of the project and a report on the recent progress will be given.

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