New Developments at CELSIUS.

M. BENGTSSON, T. BERGMARK, H. CALEN, C. EKSTROM, C.-J. FRIDEN, K. GAJEWSKI, L. HERMANSON, P. JAHNKE, T. LOFNES, G. NORMAN, D. REISTAD, R. WEDBERG, L. WESTERBERG, V. ZIEMANN, The Svedberg Laboratory, Uppsala, Sweden, A. JOHANSSON, K. RATHSMAN, J. ZLOMANCZUK, Department Of Radiation Sciences, Uppsala, Sweden – The CELSIUS electron-cooler storage-ring is used for physics experiments using very thin internal targets (of elements ranging from hydrogen to xenon) and stored beams of argon, neon, oxygen, and nitrogen ions as well as protons, deuterons and alpha particles. New developments of the accelerator include automatic tune measurements and corrections, improved orbit correction by means of singular value decomposition technique, control of momentum spread of electron cooled ion beams through modulation of the electron beam energy, automatic feedback control of the position and direction of the incoming beam, and a novel proton beam profile measurement using the so-called “tracker” of the WASA/PROMICE detector. The WASA 4π detector facility with superconducting solenoid and hydrogen pellet target is being installed in the ring.