

**Beam Diagnostics on the MAX-lab 100 MeV Race Track Microtron, M. GEORGSSON, MAXLAB**

- Calculation and measurement of the beam emittance and maximum energy spread in the MAX-lab 100 MeV Racetrack Microtron (RTM) has been performed. The injector in the MAX-Laboratory accelerator system is a 100 MeV RTM. In the design report, the emittance is roughly calculated to 0.1 mm mrad and the maximum energy spread to 100 keV. These values are to be verified. The beam emittance is measured by detection of the synchrotron radiation emitted in one of the RTM bending magnets. The energy spread is detected by measuring the deviation of the beam position while varying the RF-power to its limits. The measured values of the normalised emittance is 20 mm mrad. The measured maximum energy spread is 90 keV.