

**Performance Test at the SIS Electron Cooling Device, L. GROENING, M. STECK, T. WINKLER, GSI Darmstadt; N.S. DIKANSKY, V.I. KUDELAINEN, V.V. PARKHOMCHUK, A.I. SHARAPA, A.V. SHEMYAKIN, B.M. SMIRNOV, BINP Novosibirsk** - The electron cooling device for the heavy ion synchrotron SIS has to generate a cold, intense electron beam for fast beam accumulation of highly charged ions. The 6.3 keV electron beam which is velocity matched to the injection energy of the ion beam can be produced with an intensity of 1.5 A and loss currents below 0.1 mA. The magnetic guiding system allows transverse adiabatic expansion by a factor variable between 1 and 8. The high quality of the magnetic guiding field in the cooling section was proven by field mapping. Angular fluctuations of the field direction of less than 0.1 mrad were measured which is a precondition for the achievement of fast transverse cooling. Operation of the electron beam up to an energy of 35 keV has been demonstrated which is foreseen for additional cooling at an intermediate energy during the acceleration ramp of the SIS.