

SIS Operation at High Beam Intensities, R. BAER, K. BLASCHE, A. DYMNIKOV, H. EICKHOFF, B. FRANCAZAK, P. MORITZ, P. SPILLER, GSI Darmstadt - The heavy ion synchrotron SIS at GSI was designed for operation at the space charge limit e.g. with $2 \cdot 10^{11}$ neon [10+] ions and $4 \cdot 10^{10}$ uranium[73+] or $2 \cdot 10^{11}$ uranium[28+] ions at an injection energy of 11.5 MeV/u. Machine operation close to this limit and relevant measurements are discussed. The layout of a correction coil system for the control of machine resonances is presented. For machine operation with high intensity beams in combination with electron cooling the installation of feedback system for the suppression of coherent instabilities is addressed.