

A Fast Residual-Gas Ionization Monitor for Intense Stored Heavy Ions, P. FORCK, T. HOFFMANN, U. MEYER, A. PETERS, P. STREHL, Gesellschaft Fuer Schwerionenforschung Darmstadt; H. SCHMIDT-BOECKING, Institut Fuer Kernphysik Der J.W.-Goethe Universitaet Frankfurt - A nondestructive beam profile monitor based on the detection of ions from the residual gas ionization in the ultra high vacuum of the heavy ion synchrotron SIS has been designed. The monitor is provided to measure the efficiency of the new installed electron cooler and to study emittance shrinkage as well as space charge effects during the cooling process. The device consists of a pair of detectors to monitor vertical and horizontal beam profiles. Signal amplification is performed by four 2-inch micro-channel plates each. Extraction of beam profile is based on a one-dimensional position readout of the collected residual gas ions using a delayline anode structure. The detector handles ion rates up to 10^6 per second. A CAMAC-FERA-VME data acquisition system has been selected which can store up to some 10^5 events per second. The preference of this new readout scheme will be discussed and first results from the commissioning of the new electron cooler will be reported.