

**Diagnostic of the Compensation Process of Pulsed Ion Beams with a Time-Resolving Ion Energy Spectrometer**\*, R. DÖLLING, P. GROSS, H. KLEIN, J. POZIMSKI and K. REIDELBACH, Institut für Angewandte Physik der J.W. Goethe Universität Frankfurt - The maximum transportable current of space charge dominated ion beams in low energy beam transport lines is mainly limited by space charge forces. Space charge compensation enhances the current limit. The compensation electrons can be produced by residual gas ionization. In this case beam pulses reach the degree of compensation necessary to archive the maximum transportable beam current after a certain time. We developed a time-resolving residual gas ion energy spectrometer and investigated the compensation process of a periodically decompensated beam. The results of these measurements will be compared to corresponding measurements at the partially decompensated stationary DC beam.

\* Work supported by BMBF under contract No. 06 F 3511.