

Error Effects and Parameter Analysis for a HIDIF DTL*, H. DEITINGHOFF, G. PARISI, IAP Frankfurt University, Germany; K. BONGARDT, M. PABST, Forschungszentrum Jülich, Germany - In the framework of the European HIDIF (Heavy Ion Driven Ignition Facility) study, a conventional 200 MHz Alvarez DTL (Drift Tube Linac) that accelerates a high current (400 mA) Bi⁺ ion beam from 10 MeV/u up to 50 MeV/u has been proposed as main linac. Single particle beam dynamics calculations have been performed in presence of field amplitude and phase errors, longitudinal mismatch, misalignments, and using different input distributions. The beam dynamics design has been checked in order to fulfil the stringent conditions for injection into the following rings, keeping a small rms emittance growth and avoiding halo formation, which could cause losses from the very intense beam. Results of beam dynamics calculations are presented and discussed. The longitudinal phase space distribution is shown after a 3-harmonic bunch rotation cavity, located 170 m behind the linac.

* Work in Frankfurt supported by BMBF.