

Inertial Fusion with Accelerators, I. HOFMANN,
GSI DARMSTADT, Germany - The use of heavy ion accelerators to heat and compress matter to the conditions required for inertial fusion has been proposed for 20 years as promising solution to the energy problem. In the past two years a European initiative has been started among several laboratories with the goal of designing an "Ignition Facility" to ignite low-gain DT filled pellets. The main challenge of the driver accelerator is to provide the necessary power of 10^{16} W with single-charged heavy ions at a kinetic energy in the range 6-10 GeV. The envisaged current multiplication scheme (by almost 6 orders of magnitude, starting from a linac current of typically 200 mA) is based on a RF linac, several storage rings and final bunch compression sections. Control of space charge effects and instabilities as well as strategies to minimize emittance growth and beam loss are critical design issues. We present the status of work on these topics and discuss their impact on the layout of the driver accelerator.