Proposed Physics Programme at the planned MedAustron Facility *

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The plan for the erection of an Austrian center for hadron therapy is well progressed. This center, known as MedAustron, is grouped around an accelerator which should provide in the first stage a proton-beam in the energy range between 120 and 800MeV and a carbon beam between 120 and 400MeV. Four areas for medical purposes are foreseen, two of them with special gantries for diagnostics and therapy. In addition there are two research beam lines planned, which should be available for physicists in off hours and holidays. A schematic view of the facility is shown in Fig. 1.



Figure 1: Schematic view of the MedAustron design (T. Auberger, E. Griesmayer, MedAustron Design Studie 2004, 2nd edition, May 2007).

This facility will primarily serve medical purposes, which is also reflected in the design parameters of the accelerator. Hence the expected flux will be in the order of 10^{10} pps for protons and about $4x10^8$ pps for carbon, which is about 2-3 orders of magnitude smaller than the available fluxes at dedicated machines. Despite this low flux, the research beam lines would allow to perform standard nuclear physics experiments with protons and carbons, to make use of secondary beams to study atomic collision processes and to irradiate materials for dosimetry and specific questions in materials science. In this contribution we would briefly outline a possible physics program at such a facility.