Beamlines for fixed target experiments, test beams and particle therapy

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A. Gerbershagen[1,*]

1. Medical Center, University of Groningen, Netherlands.

* a.gerbershagen@umcg.nl

The presentation provides an overview over the current and historical fixed target experiments at CERN as well as the beamlines for the test beams. The conceptual description of the secondary and tertiary beams is given. It includes the generation of the secondary beams by interaction of primary beam with a target, converter, radiator or absorber and explains the parameters of particle production. The design of secondary and tertiary beamlines is presented, comprising the methods for selection of particle type (pions, kaons, muons, electrons, neutral particles), selection of beam energy and for the manipulation of beam parameters such as beam size, divergence, intensity etc. A brief summary of the common beam diagnostic tools and their functionality is given. The presentation concludes with an overview of accelerator applications for the particle therapy, in particular in regards to superconducting gantry developments.