



Contribution ID: 435

Type: **Poster**

Characterisation of the Microstrip Silicon Detector for the FragmentatiOn Of Target experiment

Tuesday, 24 May 2022 09:10 (1 minute)

The FOOT (FragmentatiOn On Target) experiment aims to measure the double differential cross-sections that are in the energy range of therapeutic interest (100-400 MeV), to produce sufficiently precise measurements. These data will allow a better modelling of the dose imparted to the health tissues traversed, and therefore an accurate assessment of the damage induced during therapy. To succeed the experiment will use a magnetic spectrometer operated in the inverse kinematics mode, i.e. sending ions of the appropriate energy onto a proton rich target, and studying the charge, energy and emission angle of the fragments.

The Microstrip Silicon Detector apparatus is the last tracking station of the magnetic spectrometer, located downstream of the magnets and it consists of 6 layers of silicon microstrip sensors, organised in three x-y stations with mutually orthogonal sensors. The MSD is used to measure the spatial points of the track needed for fragments' momentum reconstruction while providing also additional information about the charge and the energy loss of the charged fragments.

To characterise both its tracking capabilities (namely, its spatial resolution and detection efficiency) and its response to particles that are not at the ionizing minimum a series of tests at several accelerators have been performed.

We present the results of the complete Microstrip Silicon Detector apparatus, during the construction and testing performed in the laboratory phase, as well as the ones obtained from data taken at beam facilities delivering protons and heavier ions (Carbon and Oxygen).

Collaboration

FragmentatiOn Of Target

Primary author: SILVESTRE, Gianluigi (Istituto Nazionale di Fisica Nucleare)

Presenter: SILVESTRE, Gianluigi (Istituto Nazionale di Fisica Nucleare)

Session Classification: Solid State Detectors - Poster session