Contribution ID: **745** Type: **Poster**

Measurement of Energy Loss in the Silicon Tracking System of the CBM experiment and potential for PID

The Silicon Tracking System (STS) in the Compressed Baryonic Matter (CBM) Experiment at FAIR's SIS100 accelerator, aims to precisely track charged particles and determine their momenta. Its 876 double-sided micro-
strip sensors are the means to accomplish this task in the high multiplicity environment of heavy ion collisions
with high spatial, temporal and momentum resolution. A scaled down version of CBM is installed at the SIS18 accelerator and it serves as a full-system test-setup for the capabilities of the future experiment. The m(ini)CBM experiment has outgrown its diminutive prefix by showing promising results in the operational and scientific realms.
At the core of mCBM resides mSTS, with 3 stations and a total of 12 sensors is able to contribute to the global track reconstruction. The goal of this work is to explore the particle identification (PID) capabilities of mSTS by
measuring the collected charge from traversing ionizing particles, which is related to energy loss; this task relies on
a correct charge calibration and noise suppression of mSTS data. In the absence of a magnetic field, momentum
measurements are not possible, but using the Time Of Flight (TOF) detector of mCBM we can extract the particle
velocity and correlate it with dE
dx data from mSTS to show the behavior of multiple particle species. The data for
this work was taken from the May 2024 beam-time of mCBM@SIS18

Category

Experiment

Collaboration (if applicable)

CBM

Author: GUTIERREZ MENENDEZ, David

Presenter: GUTIERREZ MENENDEZ, David

Session Classification: Poster session 1

Track Classification: Detectors & future experiments