

The CBM Time-of-Flight wall

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The Compressed Baryonic Matter (CBM) experiment aims at exploring the QCD phase diagram at large baryon densities in the beam energy range from 2 A GeV to 11 (35) A GeV at the SIS100 (SIS300) accelerator of FAIR/GSI. For charged particle identification that is required by many observables that are sensitive to the phase structure like collective flow, phase space population of rare hyperons, fluctuations of conserved quantities, - a high performance Time-of-Flight (TOF) wall with a granularity of about 120.000 channels and a system timing resolution of better than 80 ps is being built. The most demanding challenge, however, is the enormous incident particle fluxes between 100 Hz/cm² and 25 kHz/cm² generated at the highest interaction rates (10 MHz) that CBM is designed for. Part of the wall (~10.000 channels) will be installed in the forward hemisphere

($1.0 < \eta < 1.5$) of the STAR experiment at RHIC/BNL during the beam energy scan (BES II) campaign planned for 2019/2020. This project, called eTOF, is in the scope of the FAIR phase 0 program.

The status and the performance regarding time resolution, efficiency, cluster size and rate capability of the TOF system and in particular of the eTOF system will be discussed.

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