

# Track Based Alignment Procedures of the CBM Silicon Tracking Detector

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for the CBM Collaboration — Physikalisches Institut, Eberhard Karls Universität Tübingen The CBM experiment at FAIR is being designed for the study of the QCD phase diagram in the region of the high baryon chemical potential at relatively moderate temperatures. The Silicon Tracking System (STS) is the central detector for momentum reconstruction of the produced charged particles in the CBM experiment. It consists of 8 layers of altogether ~900 double sided silicon micro strip sensors. Limited mechanical precision(>100 $\mu\text{m}$ ) during the mounting, temperature differences result in misalignment to the detector component positions. Therefore, the intrinsic spatial resolution(~20 $\mu\text{m}$ ) of the detector components has to be recovered by a track based alignment method. In this contribution, we will present the current status of implementation of the alignment algorithm. For this work, We will employ GBL(General broken line)track refit model to create the necessary input data structure to provide to the standalone PEDE part of the  $\chi^2$  minimization based MILLEPEDE alignment algorithm.

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