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## Feasibility Studies for Di-Electron Spectroscopy with CBM at FAIR

The Compressed Baryonic Matter experiment (CBM) at FAIR is designed to explore the QCD phase diagram at high net baryon densities and moderate temperatures by means of heavy ion collisions with energies from 2-11 AGeV beam energy (Au+Au collisions) and interaction rates up to 10 MHz, provided by the SIS100 accelerator. Leptons as penetrating probes not taking part in the strong interaction leave the fireball without being modified, thus carrying information from the dense baryonic matter. However, di-leptons are rare probes, therefore calling for high efficiency and high purity identification capabilities. In CBM, electron identification will be performed by a Ring Imaging Cherenkov Detector (RICH), a Transition Radiation Detector (TRD) and a Time-of-Flight detector (ToF). In this poster, feasibility studies of di-electron spectroscopy from low mass vector meson decays for central collisions at 8 AGeV beam energy will be presented. Special emphasis is put on the application of Fast Simulations to achieve higher statistics for the rare di-electrons in order to evaluate the feasibility of e.g. measurement of the fireball temperature in the intermediate di-lepton mass region beyond  $1 \text{ GeV}/c^2$ .

### Category

Experiment

### Collaboration (if applicable)

CBM collaboration

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