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Electromagnetic calorimeter concept for the HADES spectrometer

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The HADES spectrometer currently operating on the beam of SIS18 accelerator in GSI will be moved to a new position in the CBM/HADES cave of the future FAIR complex. Electromagnetic calorimeter (ECAL) will enable the HADES@FAIR experiment to measure data on neutral meson production in heavy ion collisions at the energy range of 2-10 A GeV on the beam of the new accelerator SIS100@FAIR. Calorimeter will be based on 978 massive lead glass modules read out by photomultipliers and a novel front-end electronics. Layout of the ECAL detector will be presented.
Secondary gamma beam with energies ranging from 81 MeV up to 1399 MeV from MAMI-C Mainz facility was used to verify selected technical solutions. Relative energy resolution was measured using modules with three different types of photomultipliers. Two types of developed front-end electronics as well as energy leakage between neighboring modules under parallel and declined gamma beams were studied in detail.

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