

Design and performance of an electromagnetic calorimeter for a FCC-hh experiment

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The physics reach and feasibility of the hadron-hadron Future Circular Collider (FCC-hh) with a centre of mass energies up to 100 TeV and unprecedented luminosities is currently under investigation. We will present the current baseline technologies for the calorimeter system of the FCC-hh reference detector: a liquid argon (LAr) electromagnetic and a scintillator-steel (Tile) hadronic calorimeter. Alternative technologies which are currently under consideration will be briefly discussed. This talk will focus on the electromagnetic calorimeter (ECAL) where requirements and feasibility will be discussed. The ECAL subdetector will have to meet the requirements on the high radiation hardness and must be able to deal with a very high number of collisions per bunch crossings (pile-up). Moreover, very good energy and angular resolution for a wide range of electrons' and photons' momentum is needed in order to meet the demands based on the physics benchmarks. First results of the performance studies with the new LAr calorimeter design will be shown.

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