

Performance studies and requirements on the calorimeters for a FCC-hh experiment

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The physics reach and feasibility of the Future Circular Collider (FCC) with center of mass energies up to 100 TeV and unprecedented luminosity is currently under investigation. The new energy regime opens the opportunity for the discovery of physics beyond the standard model. However, the discovery of e.g. postulated new heavy particles such as gauge bosons require an efficient reconstruction of very high p_T jets. The reconstruction of these boosted objects, with a large fraction of highly energetic hadrons, set the requirements on the calorimetry: excellent energy resolution (especially low constant term), containment of highly energetic hadron showers, and high transversal granularity to provide sufficient distinction of close by particles. Additionally the FCC detectors have to meet the challenge of a very high pile-up environment.

We will present the preliminary results of the ongoing performance studies, discuss the feasibility and potential of the technologies under test, while addressing the needs of the physics benchmarks of the FCC-hh experiment.

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