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The CLIC detector

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The proposed Compact Linear Collider (CLIC) will provide electron-positron collisions with centre-of-mass energy operation in three stages from a few hundred GeV up to 3 TeV. This offers a rich precision physics program combined with high sensitivity to a wide range of possible new phenomena. The precision required for such measurements and the specific conditions imposed by the beam bunch sizes and time structure put strict requirements on the detector design and technology development. This includes ultra-low mass vertexing and tracking systems with small cells, highly granular imaging calorimeters, and a precise hit-timing resolution for all subsystems. A new optimised detector model matching these requirements has been integrated in the CLIC simulation framework. A variety of detector optimisation studies have been carried out to establish the overall detector performance and to assess the impact of different technology options. In parallel, ambitious R&D programs, e.g. for silicon tracking detectors, are pursued, addressing the challenging detector requirements with innovative new technologies. This contribution reviews the optimisation studies performed for critical parameters of the CLIC detector, presents the detector performance achieved in full-detector simulations and gives an overview of the ongoing hardware R&D.

Experimental Collaboration

CLICdp Collaboration

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