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CLIC detector: performance optimisation for e+e- physics above 1 TeV and status of the corresponding R&D activities

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Detectors at CLIC are optimised for precision e+e- physics at multi-TeV centre-of-mass energies, as well as for the CLIC-specific beam timing conditions and beam-induced background processes. The talk will provide an overview of these requirements, illustrated on the basis of example physics benchmark processes, and show how optimal physics performance can be achieved under these conditions. The resulting requirements set very high demands on sub-detector capabilities. The vertex and tracking detectors require very small cell sizes and hit timing at the 10 ns level, as well as ultra-low mass, facilitated by power pulsing and air cooling. The calorimetry calls for ultra dense solutions with high granularity, large dynamic range and hit timing at the 1 ns level. Detector R&D following these stringent requirements is progressing well in several areas. A status report on the innovative detector R&D efforts for CLIC will be included in the presentation.

Summary

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