

Physics studies for a staged construction of CLIC

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We present the status of a study of the physics performance of CLIC for a staged construction with three energy stages at 500 GeV, 1.4 TeV and 3 TeV. For each stage, detailed information on the luminosity spectrum and the background level, in particular of mini-jet production in two photon processes, is used in full detector simulations. At the first energy stage, the capability for a top threshold scan by operating the machine at the top threshold and the measurement of the Higgs mass in Z recoils is studied. At 1.4 TeV, we consider mass and cross section measurements of various gauginos and sleptons with masses around 500 to 600 GeV in a specific SUSY model as well as the measurement of the Higgs selfcoupling. At 3 TeV, the previous extensive studies are complemented by the Higgs selfcoupling at full CLIC energy.

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