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The ILD/CALICE Silicon-Tungsten Electromagnetic Calorimeter: status and potential

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The Particle Flow Algorithms adopted for future Lepton Colliders detectors and phase-II LHC experiment upgrades require very high granularity calorimeters to deconvolve the individual contributions of particles in jets. This is especially true for electromagnetic calorimeters (ECAL). For a realistic large detector however many technological requirements have to be fulfilled: modularity for industrialisation; compact integration of an embedded very front-end electronics featuring large dynamics, low-power and self-triggering; mechanical structure and cooling systems with minimal dead zones. The technological prototype of the SiW-ECAL presented here should achieve all this; up-to 12 layers will be tested in beam in 2016, while design and optimisation studies are on-going on a variety of simulated key processes to test the performance of the hardware and the algorithms.

Author: SHPAK, Kostiantyn (Centre National de la Recherche Scientifique (FR))

Presenter: SHPAK, Kostiantyn (Centre National de la Recherche Scientifique (FR))

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