

Title: Development of technological prototype of silicon-tungsten electromagnetic calorimeter for ILD.

Abstract: The best jet energy resolution required for precise physics measurements at ILC is achievable using a Particle Flow Algorithm (PFA) and highly granular calorimeters. As it was shown by CALICE international R&D collaboration, the silicon-tungsten imaging electromagnetic calorimeter provides the best granularity and jet resolution. After proving the PFA concept with physical prototypes in 2006–2011, an emphasis is now moved to building a technological prototype satisfying challenging physical, mechanical, electronic and thermal requirements. All chosen technologies should be reliable and scalable for a mass production of a future detector. We report on the current status of R&D, in particular, on beam, cosmic and charge injection tests of the technological prototype and on the tests of ECAL mechanical structure with embedded fiber Bragg grating optical sensors. We also report on our plans to build a realistic almost full-scale prototype detector of 1–1.5 m length and test it together with an existing 600 kg carbon fiber – tungsten mechanical structure in 2015 at CERN beams.