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CALICE Silicon-Tungsten Electromagnetic Calorimeter - Concept and Test Beam Results

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In 2006, the silicon tungsten calorimeter prototype developed by the CALICE Collaboration was irradiated by low energy electrons (< 6 GeV) at DESY and electrons and hadrons (pions and protons) of energies from 6 GeV to 50 GeV and 80 GeV, respectively, at CERN. Obtained data demonstrate superb shower patterns, determined mainly by a small Moliere radius of tungsten and fine granularity of silicon sensors. Such a calorimeter functions to a great extent as a tracker and meets requirements of particle flow concept for the analysis of $e+e-$ collisions at future linear collider. The concept of the silicon-tungsten electromagnetic calorimeter, analysis of test beam results and characterisation of the calorimeter prototype which operated most of time in combination with the TileCal hadron calorimeter and tail catcher prototypes will be presented together with the outlook and future R&D plans towards the final calorimeter design.

Author: VRBA, Vaclav (Czech Ac. of Sciences)

Presenter: VRBA, Vaclav (Czech Ac. of Sciences)

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