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## New results of the technological prototype of the CALICE highly granular silicon tungsten calorimeter

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A highly granular silicon-tungsten electromagnetic calorimeter (SiW-ECAL) is part of the design of the ECAL for many detectors conceived future Higgs factories, in particular for the International Large Detector (ILD) concept, one of the two detector concepts for the detector(s) at the future International Linear Collider. Prototypes for this type of detector are developed within the CALICE Collaboration.

The technological prototype features integrated front-end electronics or compact layer and readout design. During 2019-20 a stack of 15 layers with a dimension of  $\sim 250 \times 180 \times 10 \text{ mm}^3$  each was assembled, for a record number of 15360 cells, one of biggest for this type of calorimeters. A beam test at DESY has been carried out in November 2021 and a second one is scheduled for March 2022. These tests will allow for first detailed tests in terms of energy resolution and linearity but also in terms of homogeneity and efficiency of the individual layers and cells. The beam test will be a proof for the feasibility of the application of a highly compact readout system that in terms of compactness meets already the needs for detector systems at future Higgs factories. At the Pisa Meeting we will present first beam test results and the status of the implementation in simulation. In 2021/22 we have developed a new version of detector layers that notably will be optimised for power pulsing with an innovative local storage of power for the readout ASICs. The results of first tests with these layers will be available at the time of the Pisa Meeting.

Note finally that for 2022 and 2023 large scale beam test campaigns with CALICE prototypes of hadronic calorimeters are planned. The common readout of the SiW-ECAL with the CALICE Analogue HCAL will be tested in March 2022.

### Collaboration

CALICE

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