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Large Scale Characterization and Quality Assurance Tests for CALICE AHCAL "Engineering Prototype"

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The CALICE collaboration have studies different concepts for the hadronic calorimeters for a future linear collider detector. The Analog Hadronic Calorimeter (AHCAL) concept is a sampling calorimeter of tungsten or steel absorber plates using plastic scintillator tiles read out by silicon photomultipliers (SiPMs) as active material.

SiPMs evolved to match scintillator light wavelength, allows to optimize tile design for scalable production. Optimization of tile geometry allows to use industry standard package and PCB placement procedures

After having demonstrated the capabilities of the technology in the "physics prototypes", the AHCAL "engineering prototype", consisting of 24K channels, was built this year with the focus on proving scalability to a full AHCAL detector with more than 8 million channels.

This talk will focus on the Large scale characterization tests and quality assurance tests of the surface mounted SiPMs used in the production of the AHCAL "engineering prototype".

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