

## Design and status of the Mu2e CsI + SiPMs calorimeter

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The Mu2e experiment at Fermilab will search for the charged-lepton flavour violating neutrino-less conversion of a negative muon into an electron in the field of an aluminum nucleus.

The Mu2e detector is composed of a tracker and an electromagnetic calorimeter and an external veto for cosmic rays.

The calorimeter plays an important role in providing excellent particle identification capabilities, a fast online trigger filter while aiding the track reconstruction capabilities.

The calorimeter requirements are to provide a large acceptance for  $\sim 100$  MeV electrons and reach:

- 1) a time resolution better than 0.5 ns @ 100 MeV;
- 2) an energy resolution  $O(10\%)$  @ 100 MeV;
- 3) a position resolution of 1 cm.

The calorimeter consists of two disks, each one made of 674 pure CsI crystals readout by two large area  $2 \times 3$  array of UV-extended Silicon Photomultipliers (SiPMs) of  $6 \times 6$  mm<sup>2</sup> dimensions.

A large scale prototype has also been constructed and tested at the beam test facility in Frascati. It consists of 51 pre-production crystals readout by a Mu2e SiPM.

We will present all the test and progresses done on crystals and SiPMs to define the calorimeter design as well as the satisfying results obtained with the test beam of the prototype.

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