

Crilin: a semi-homogeneous crystal calorimeter for the muon collider

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A muon collider is being proposed as a next generation facility. The incredible physics potential comes at the cost of technological challenges due to the short muon lifetime. The beam-induced background, produced by the muon decays in the beams and subsequent interactions, may limit the detector performance. A diffused flux of photons and neutrons passes through the calorimeter, which thus requires a design to avoid this substantial background. The Crilin calorimeter is being studied as a valuable option for the electromagnetic calorimeter: it is a semi-homogeneous calorimeter with Lead Fluoride crystals interfaced with SiPMs.

In this talk the simulation studies towards the Crilin design are presented. The Crilin performance and the impact of the background are discussed.

The experimental tests on a prototype are also presented. These tests are fundamental to demonstrate that the requirements established with the muon collider simulation are achieved by the Crilin technology.

Alternate track

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