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ALLEGRO simulated performance

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Calorimetry based on liquefied noble gases is a well proven technology that has been successfully applied in numerous high-energy physics experiments, such as DØ, ATLAS, and NA62. In addition to extreme radiation hardness, noble liquid calorimeters provide excellent energy resolution, linearity, stability, uniformity and timing properties at a reasonable cost. These attributes make it a strong candidate for future particle physics experiments - in both hadron and lepton colliders. Advances in printed circuit board (PCB) technology and manufacturing processes make it possible to add high granularity to the already impressive list of benefits of noble liquid calorimeters. By using multi-layer PCB's as read-out electrodes between the noble liquid and absorbers, we can build a calorimeter with almost arbitrarily high granularity. This in turn allows for four-dimensional imaging, machine learning algorithms and particle-flow reconstruction to be fully exploited.

ALLEGRO (A Lepton cOLLider Experiment with Granular calorimetry Read-Out) is a detector concept proposed for FCC-ee whose R&D is ongoing for adapting noble liquid sampling calorimetry to an electromagnetic calorimeter. In this poster we will present some simulated performances of ALLEGRO.

Primary author: LI, Tong (APC Paris, CNRS/IN2P3)

Presenter: LI, Tong (APC Paris, CNRS/IN2P3)

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