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ALLEGRO detector concept for FCC-ee

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The detectors to be operating at the Future Circular electron-positron collider (FCC-ee) must fulfill demanding requirements on the high precision measurements. Key requirements for the detector include excellent energy and angular resolution as well as excellent particle identification capabilities. The ALLEGRO detector is a general-purpose detector concept well suited for the FCC-ee. The individual parts of the detector are introduced. The calorimeter system consists of high granular noble-liquid calorimeter and hadronic calorimeter with scintillating tiles and readout of the wavelength shifting fibers. Preliminary results from performance studies using simulated beams of electrons and pions are presented. In addition to these design-focused analyses, we briefly introduce our inquiries into the potential use of machine learning approaches for particle identification and detector calibration.

Primary author: FALTOVA, Jana (Charles University (CZ))

Presenter: FALTOVA, Jana (Charles University (CZ))

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