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The Antarctic Demonstrator for the Advanced Particle-astrophysics Telescope (ADAPT)

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The Antarctic Demonstrator for the Advanced Particle-astrophysics Telescope (ADAPT) is a project to build a prototype telescope to detect low energy astrophysical gamma rays in the MeV energy range. The instrument will consist of four layers of a scintillating fiber tracker plus an active converter tracker made of CsI scintillating crystals read out by wavelength shifting (WLS) fibers. Both scintillating and WLS fiber signals will be detected with Silicon Photomultipliers (SiPM). Fast and low power front-end electronics (FEE) are being developed based on the SMART ASIC for the SiPM signal amplification and the ALPHA ASIC for their digitization. The ADAPT project will serve as a technology demonstrator for the larger Advanced Particle-astrophysics Telescope (APT) mission, which will have a much larger area of 3x3 m^2. The ADAPT instrument will feature a 30-day balloon flight, with the possibility of detecting prompt signal from Gamma-Ray Bursts (GRBs) with degree-scale localization and polarization constraints. In this contribution, we will present the ADAPT project and its status, with a particular focus on the FEE development.

Eligibility for ”Best presentation for young researcher” prize

No

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