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Test Beam results of a fibre sampling Dual-Readout Calorimeter prototype

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Dual-readout (DR) calorimetry is one of the technologies of interest for the next generation of leptonic colliders such as FCC-ee. This calorimeter uses both scintillation and Cherenkov signals to correct for electromagnetic fraction fluctuations in hadronic showers, significantly improving the accuracy of energy measurement. Several prototypes and beam-test campaigns were conducted to validate its feasibility and to optimise design choices. The HiDRa (Highly Granular Dual-Readout Calorimeter) demonstrator represents an important step toward a modular, cost-effective and high-performance solution designed to comply with the 4-π geometry required at collider experiments.

In 2024, half of the demonstrator (36/80 minimodules) was qualified for the first time with electron beams at CERN SPS, showing a good linearity response and energy resolution in accordance with Monte Carlo simulations. This talk will summarise the results of the latest beam tests.

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