Contribution ID: **37** Type: **not specified**

Perfomance studies and design optimization of Spaghetti Calorimeter prototypes

Wednesday 22 May 2024 12:40 (1 minute)

This R&D effort aims to develop Spaghetti Calorimeters (SpaCal) with O(10) ps time resolution, energy resolution with 10% sampling and 1% constant term, and fine granularity. The SpaCal modules will use several novel technologies, including radiation-hard scintillating materials, hollow light guides, and ultra-fast photodetectors.

R&D activities include laboratory measurements, Monte-Carlo simulations, and test beams. Several SpaCal prototypes were assembled at CERN and evaluated during test beam campaigns. Two components of the prototype design influencing the energy resolution are the linearity of photodetectors and spatially uniform light collection, and dedicated test benches were set up to study and optimize them.

This work presents the energy and time resolution measured in test beams, a performance comparison to detailed Ray-Tracing simulations, and the laboratory measurements for prototype optimization.

Primary author: BORDELIUS, Aleksandar (CERN)

Presenter: BORDELIUS, Aleksandar (CERN)

Session Classification: Poster Session & Lunch