

## **The Time Structure of Hadronic Showers in Imaging Calorimeters with Scintillator and RPC Readout**

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The intrinsic time structure of hadronic showers has been studied to evaluate its influence on the timing capability and on the required integration time of highly granular hadronic calorimeters in future collider experiments. The experiments have been carried with systems of 15 detector cells, using both scintillator tiles with SiPM readout and RPCs, read out with fast digitizers and deep buffers. These were installed behind the CALICE scintillator - Tungsten and RPC - Tungsten calorimeters as well as behind the CALICE semi-digital RPC - Steel calorimeter during test beam periods at the CERN SPS. We will discuss the technical aspects of these systems, and present results on the measurement of the time structure of hadronic showers in steel and tungsten calorimeters. For scintillator readout, these are compared to GEANT4 simulations, providing important information for the validation and the improvement of the physics models. In addition, a comparison of the observed time structure with scintillator and RPC active elements will be presented, which provides insight into the differences in sensitivity to certain aspects of hadronic showers depending on readout technology.

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