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Performance of a simple 2-plane telescope (CHROMini) and a CMS 2S module in a 25 MeV proton beam: Comparison between data and Geant4 simulation

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The CHROMini telescope has been assembled at the 25 MeV proton test beam facility at IPHC-Strasbourg, consisting of two reference planes placed in front and behind the DUT (Detector Under Test), respectively, with each plane consisting of two CMS Pixel Phase-1 silicon modules. In this talk the development of a standalone Geant4 simulation, which was used to verify the design of the telescope and for estimating its expected performance with respect to spatial resolution, cluster width and cluster charge is presented, along with a study for the optimization of relative distances in the setup. In addition, the measured response of the telescope and a mini 2S module of CMS as DUT is compared to simulation.

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