

Track and vertex reconstruction using moving emulsion blocks and a silicon pixel tracker for particles induced by 400 GeV/c protons on a thick target

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The SHiP-charm experiment is designed to measure the charm production cross section, including cascade production, of 400 GeV/c protons hitting a thick, SHiP-like target. For the detection of production and decay of heavy charmed particles, emulsion films are employed in a multilayered moving target, forming an emulsion cloud chamber. While the emulsion films provide excellent spatial resolution they do not provide timing information, integrate all events, and quickly get saturated. For the charm measurement the emulsion target is thus moving at a constant speed during data-taking. A first optimization run at the CERN SPS has been performed in 2018, with the purpose to develop the required analysis tools and to fine-tune the detector layout. We report on the experiment design, track reconstruction in the pixel tracker and the track matching with the moving emulsion detector.

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No, this is an entirely new submission.

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