

# Tracking system performance of the future SHADOWS experiment at CERN

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The proposed SHADOWS experiment, Search for Hidden And Dark Objects With the SPS, will be a proton beam-dump experiment at the CERN SPS. Positioned off-axis to suppress background, SHADOWS will profit from the high intensity ECN3 proton beam line, to explore the existence of a wide range of feebly-interacting particles (FIPs). The detector, with dimensions of  $2.5 \times 2.5 \text{ m}^2$  and a length of 34 m, is designed for optimal tracking and timing performance, facilitating the identification and reconstruction of various visible final states of FIP decays. The workhorse of SHADOWS is the tracking system for precise reconstruction of charged particle tracks and precise measurement of their momenta. It consists of four detector stations, two before and two after a warm dipole magnet, for the momentum reconstruction. As baseline detector technology we propose straw drift-tubes with 1 cm diameter and a single hit resolution of  $150 \mu\text{m}$ . The presentation will provide a general overview of the SHADOWS detector design, details on the tracking system and present a performance study based on simulation.

## Collaboration

SHADOWS

## Role of Submitter

I am the presenter

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