

The SHiP experiment

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The Search for Hidden Particles (SHiP) experiment has been proposed for construction at the Beam Dump Facility at CERN SPS. SHiP is aimed at searching for very weakly interacting long lived particles such as Heavy Neutral Leptons.

SHiP is composed of two detector systems located downstream of the target, absorber and muon shield.

The first is the Scattering and Neutrino detector, based on Tungsten-emulsion bricks and scintillating fiber, dedicated to the study of ν_τ and light DM interactions. This is followed by a 50m long vacuum decay volume surrounded by a liquid scintillator veto. The final part of the vacuum vessel holds the straw tube spectrometer tracker. Downstream of the vessel are a timing layer, a lead-scintillator calorimeter with additional high resolution micromegas layers and a fast muon detector.

The combination of shielding, accurate tracking and background tagging systems is expected to make SHiP a zero-background experiment with unprecedented sensitivity.

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