

Search for Hidden Particles with SHiP

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The SHiP (Search for Hidden Particles) is a newly proposed experiment at the CERN SPS in order to explore the domain of hidden particles with mass from sub-GeV up to $O(10)$ GeV. It is designed to search in particular for very weakly interacting long lived particles with super-weak coupling down to 10^{-10} , such as Heavy Neutral Leptons (HNL), new scalar, fermionic and vector particles including dark matter particles. These particles would be produced in a proton beam dump at high intensity 400 GeV from decay of charm or beauty particles. The main experimental signature involves two charged decay tracks of HNL. The SHiP detector (total length is about 150m) consists of long evacuated decay volumes, which is followed by magnetic spectrometer, a calorimeter and muon detectors in order to allow full reconstruction and particle identification. Moreover, the facility is ideally suited to study the interactions of tau neutrinos. For this purpose, the emulsion target surrounded by a magnetic field is located upstream of the decay volumes. About 3000 tau neutrinos are expected to be observed with an integrated 2×10^{20} protons on target. In addition, anti-tau neutrinos can be observed for the first time. In this talk, we will present the current status and long term schedule of the experiment.

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