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## The SHiP experiment at CERN

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The SHiP Collaboration has proposed a general-purpose experimental facility operating in beam dump mode at the CERN SPS accelerator. The SHiP experiment incorporates a muon shield based on magnetic sweeping and two complementary apparatuses. The detector immediately downstream of the muon shield is optimised both for recoil signatures of light dark matter scattering and for physics with neutrino interactions, and consists of a spectrometer magnet housing a layered detector system with heavy target plates, emulsion film technology and electronic high precision tracking. The second detector system aims at measuring the visible decays of hidden sector particles to both fully reconstructible final states and to partially reconstructible final states with neutrinos, in a nearly background free environment. Using the high-intensity beam of 400 GeV protons, the experiment is capable of integrating  $2 \cdot 10^{20}$  protons in five years, which allows probing dark photons, dark scalars and pseudo-scalars, and heavy neutrinos with GeV-scale masses at sensitivities which exceed those of existing and projected experiments. The tau neutrino deep-inelastic scattering cross-sections will be measured with a statistics a thousand times larger than currently available, with the extraction of the  $F_4$  and  $F_5$  structure functions, never measured so far, and allow for new tests of lepton non-universality with sensitivity to BSM physics. Following the review of the Technical Proposal, the CERN SPS Committee and the CERN Research Board recommended in 2016 that the experiment and the beam dump facility studies proceed to a Comprehensive Design phase. A proposal to the European Strategy for Particle Physics Update was recently submitted.

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