



Laboratório de Instrumentação e
Física Experimental de Partículas

Seminário LIP

Quarta Feira, 20 de Junho 2018

11:30

The SHiP experiment proposal at CERN

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The discovery of the Higgs boson has fully confirmed the Standard Model of particles and fields. Nevertheless, there are still fundamental phenomena, like the existence of dark matter and the baryon asymmetry of the Universe, which deserve an explanation that could come from the discovery of new particles. The SHiP experiment at CERN was recently proposed to search for very weakly coupled particles in the few GeV mass domain. The existence of such particles, foreseen in different theoretical models beyond the Standard Model, is largely unexplored. A beam dump facility using high intensity 400 GeV protons is a copious source of such unknown particles in the GeV mass range. The beam dump is also a copious source of neutrinos and in particular it is an ideal source of tau neutrinos, the less known particle in the Standard Model. Indeed, tau anti-neutrinos have not been directly observed so far. The neutrino detector foreseen in SHiP shows also a remarkable sensitivity to the search for light dark matter. We review the physics potential of such an experiment.

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Café e bolinhos 30 min antes