Contribution ID : **287** Type : **Plenary/section talk**

The SHiP experiment at CERN SPS

Wednesday, 12 October 2016 13:00 (30)

The experimental evidence for BSM physics such as the non-zero neutrino masses, the baryon asymmetry in the Universe, and the presence of non-baryonic dark matter may have their origin in new physics involving very weakly interacting particles as predicted by models with a secluded or hidden sector of particles. In general, these models contain mediators that couple very weakly with SM particles, acting as portals to the hidden sector, e.g. dark photon,Majorananeutrinos,darkscalars,etc... Relativelylightwarmdarkmatterisnaturally accommodated in these models. Given the small coupling constants and typically long lifetimes, hidden particles have not been significantly constrained by previous experiments, and the reach at current experiments is limited by both luminosity and acceptance. This talk will describe the recently proposed SHiP experiment at the SPS which is aiming at generically searching for hidden particles. The high power and unique operational mode of the SPS provide ideal conditions for accessing a wide variety of light long-lived very weakly interacting particles and light dark matter. With 2x1020 protons on target, SHiP is able to achieve sensitivities which are up to four orders of magnitude better than previous constraints, accessing a significant fraction of the unexplored parameter space. Such an experiment would be an essential complement to the LHC in the search for new physics at CERN. The SHiP experiment is also ideally suited to study the interactions of tau neutrinos.

Primary author(s) : GOLUTVIN, Andrey (Imperial College London / CERN)

Presenter(s) : GOLUTVIN, Andrey (Imperial College London / CERN)

Session Classification : Nuclear physics and particle physics - plenary IV

Track Classification : Nuclear physics and particle physics