

PICO-500L: Simulations for a 500L Bubble Chamber for Dark Matter Search

Tuesday 25 July 2017 17:00 (15 minutes)

The PICO-500L detector will be a 500 litre bubble chamber designed to search for weakly interacting massive particles (WIMP). The experiment will cover a large range of mass and cross section parameter space, proving a variety of theoretical models. The PICO collaboration has built a well established technology, easily scalable and relatively inexpensive with flexibility to easily exchange targets following a discovery. PICO-500L will be located two kilometres underground at SNOLAB, with the goal to maintain all backgrounds below one event per year. A careful study has been made using GEANT4 to provide guidance on the material and components purity, as well as shielding requirements, with the goal to maintain the overall neutron budget to less than one per year. Results from a detailed Monte Carlo simulation to estimate the expected backgrounds in the detector using C_3F_8 as target material will be presented in this talk.

Author: VAZQUEZ-JAUREGUI, Eric (IF-UNAM)

Presenter: VAZQUEZ-JAUREGUI, Eric (IF-UNAM)

Session Classification: Dark Matter

Track Classification: Dark Matter