



## Poster session 4 – Friday 8 July

### P4.009 DEAP-3600 dark matter experiment

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*on behalf of DEAP-3600 collaboration*

The DEAP-3600 detector located 6800' underground at SNOLAB utilises 3.6 tonnes of liquid argon to search for direct detection of dark matter with a projected sensitivity to spin independent 100 GeV WIMPs of  $10^{-46}$  cm<sup>2</sup> for a 3 year exposure.

The argon is contained in a spherical acrylic vessel and the detector is operated in single-phase mode. Scintillation light from recoils in the argon is wavelength shifted by a layer of TPB on the inner surface of the acrylic and viewed through 50 long acrylic light guides by 255 Hamamatsu R5912HQE PMTs.

Pulse shape discrimination is used to effectively suppress electromagnetic type backgrounds (primarily from internal <sup>39</sup>Ar). Material selection, passive shielding in the form of polyethylene and foam filler blocks, immersion in a water shield tank and clean construction techniques reduces the remaining neutron backgrounds while the ~6000 m water equivalent overburden together with PMTs in shield tank provides an effective cosmic ray veto.

In-situ sanding with a remotely controlled resurfacer was used to remove the bulk of the radon induced <sup>212</sup>Pb alpha backgrounds from the inner surfaces of the vessel and fiducialization provides an additional cut.

Construction of the detector finished at the start of 2016. The current status of detector calibration and commissioning will be presented