

# **The DEAP-3600 Experiment – Executive Summary**

## **What is this contribution about?**

This talk describes the DEAP-3600 experiment. The current status of the experiment and analyses performed on the data from the experiment.

## **Why is it relevant / interesting?**

The talk describes some of the recent limits on dark matter set by the experiment both in the standard coupling model and other models. The talk also describes some other physics measurements made by the experiment besides the standard WIMP dark matter search, including searches for Multiple Interacting Massive Particles and solar neutrino measurements. Furthermore, upgrades to the experiment designed to reduce some of the significant backgrounds are described.

## **What have we done?**

We have set limits on dark matter coupling using 231 days of livetime. These limits have been set for both the standard model and various other coupling and halo scenarios. Significant contributions to the background budget have been identified from the 231 day data set. Upgrades to the detector have been designed to mitigate these backgrounds. Machine learning techniques have also been employed to reduce these backgrounds. Currently analysis is underway on a larger livetime dataset.

## **What is the result?**

Dark matter limits are shown for the standard coupling and halo model using 231 days of livetime, limits are also shown for “xenophobic” dark matter scenarios in this scenario the sensitivity of DEAP-3600 is stronger than that of XENON-1T. The upgrades described in this talk to the detector are currently being installed.