

Solar axion search by annual modulation with XMASS-I detector

Wednesday 26 July 2017 13:45 (15 minutes)

The axion is a hypothetical particle invented for solving the CP problem in strong interactions.

The XMASS-I detector with 832 kg of natural xenon has the sensitivity for searching for axions produced in the Sun thanks to its low energy threshold and low background.

In the XMASS commissioning run, we obtain the model independent limit on the coupling for mass $\ll 1$ keV is $g_{aee} < 5.4 \times 10^{-11}$ (90% C.L.) for solar axion analysis.

As expected event rate of solar axion signal has the seasonal variation depending on the distance from the Sun, such information can enhance the detection sensitivity and its evidence.

In this talk, we will present the result of a search for solar axion by annual modulation with about 1 year of XMASS-I data.

Primary author: ICHIMURA, Koichi (University of Tokyo)

Presenter: ICHIMURA, Koichi (University of Tokyo)

Session Classification: Dark Matter

Track Classification: Dark Matter