

Warsaw Workshop on Non-Standard Dark Matter: multicomponent scenarios and beyond

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Dark matter search with XMASS

Content :

The XMASS program is implemented through a large volume of liquid Xe scintillation experiments at Kamioka in Japan. In the current stage, we focus on the direct detection of dark matter with 832 kg liquid Xe.

We have achieved the low energy threshold ($\sim 0.6 \text{ keVee}$) thanks to the high scintillation light yield that allows us the low mass WIMPs search and a study of annual modulation due to dark matter.

Also the background level of electron recoil events is very low, especially in the $\sim 40\text{--}100 \text{ keVee}$ region the level is $O(10^{-4} \text{ count/keVee/kg/day})$ which is world lowest level. Therefore we have searched for axion, super-WIMPs, inelastic scattering of dark matter as well.

In this talk, the latest dark matter search results are shown.

We are developing the next phase detector to increase the sensitivity of dark matter search. The future plans of the XMASS experiment are also presented.

Primary authors : Dr. KOBAYASHI, Kazuyoshi (ICRR, University of Tokyo)

Co-authors :

Presenter : Dr. KOBAYASHI, Kazuyoshi (ICRR, University of Tokyo)

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