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Dark matter searches with Super-Kamiokande

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Super-Kamiokande (SK) is a water Cherenkov detector located 1,000 m underground in Kamioka Observatory, ICRR, University of Tokyo in Japan. It consists from a cylindrical stainless steel tank, 50,000 ton of purified water, and 11,000 of 20-inch PMTs. The fiducial volume of the SK detector is 22.5 kton. The experiment was started in April 1996, and currently phase V (SK-V) is running. In near future, we are going to move to the next phase, that is SK-Gd. In the SK-Gd phase, we are planning to add 0.1% of gadolinium to the current SK detector in order to enhance neutron tagging efficiency. The initial work (refurbishment of the SK detector) was done from June 2018 through January 2019.

In this presentation, a brief summary of Super-Kamiokande and recent dark matter search results with Super-Kamiokande are reported. As a future plan, the status of the SK-Gd project is explained. An expectation on dark matter searches with Hyper-Kamiokande will be also mentioned.

Summary

Primary author: Prof. TAKEUCHI, Yasuo (Graduate School of Science, Kobe University)

Presenter: Prof. TAKEUCHI, Yasuo (Graduate School of Science, Kobe University)