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LNGS SEMINARS

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Status and Perspectives of the Center for Underground Physics at IBS, Korea

Abstract

Center for Underground Physics is a new center for particle astrophysics established in 2013. It is one of 29 centers of the Institute for Basic Science (IBS) in Korea. The center aims to perform elegant experiments to discover extremely rare or new phenomena related to the identification of dark matter or neutrino-less double beta decays. We are currently running COSINE experiment for dark matter (as talked by Hyunsu Lee before this talk), AMoRE experiment for double beta decay, and NEOS Experiment for sterile neutrino search.

First data of AMoRE-pilot experiment with 1.9kg of enriched CaMoO4 crystals coupled with MMC sensors posed higher backgrounds than expected due to hot components and neutron capture gammas. Removing hot components and additional neutron shielding reduced the backgrounds significantly. The long-term performance of MMC sensors will be described. The progress of producing enriched Molybdenum crystals at the center will be described.

I will address common activities between LNGS and CUP for future collaboration. An emphasis will be on the facility for ultra-low background crystal growing and fast cryogenic sensor development. In addition, the future plans for CUP in a new underground laboratory will also be discussed.

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LNGS - "B. Pontecorvo" room
http://agenda.infn.it/event/yeongduk_kim