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An Ar-gas ionization chamber for alpha particle detection at the Yangyang underground laboratory (12' + 3')

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An ionization chamber from XIA co. for detecting alpha particles has been installed in the Yangyang underground laboratory. The alpha detector is served to assay detector materials for the KIMS-NaI dark matter experiment and the AMoRE double beta decay experiment. This instrument describes characteristic signals from ionization electrons produced by material's alpha particles in an Ar-filled gas chamber. The distinct rise time from the signal is used to select alpha particles that originate from the specimen tray and veto those from other sources. The chamber can reach a sensitivity as low as 0.0001 count/cm²/hr. In this presentation, measurement results with copper plates, lead bars, and reflective sheets are reported.

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