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Recent progresses of the radon detector with an electrostatic collection

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In the field of particle physics, various experiments have been designed in order to search for rare physics processes beyond the standard model. Radioactive noble gas radon is one of the major background sources below the MeV region in rare event search experiments. To precisely monitor radon concentration in purified gases, a radon detector with an electrostatic collection method is widely used. To extend the application of the Rn detector, we have constructed the calibration set up in the Kamioka underground laboratory and evaluated the detector performance by filling the Rn detector with various gases, such as purified air, argon, xenon, and tetrafluoromethane. In this presentation, we overview the recent progresses of the Rn detector development and give a future prospect of this study.

Primary author: NAKANO, Yuuki (Kamioka observatory)

Presenter: NAKANO, Yuuki (Kamioka observatory)

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