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Type: **Talk**

## Status of the MAJORANA DEMONSTRATOR experiment

*Tuesday 8 September 2020 17:45 (25 minutes)*

Neutrinoless double beta decay searches play a major role in determining neutrino properties. The MAJORANA Collaboration is operating an ultra-low background, modular high-purity Ge detector array to search for this decay in  $^{76}\text{Ge}$ . Located at the 4850-ft level of the Sanford Underground Research Facility, the DEMONSTRATOR's goal is to achieve a background rate low enough to support the design of a future tonne-scale  $^{76}\text{Ge}$  experiment.

The experiment has achieved an energy resolution of  $\sim 2.5$  keV FWHM at the Q-value, which is the best among all double-beta decay experiments. The excellent energy resolution and ultra-low background allows the DEMONSTRATOR to establish stringent limits double-beta decay to excited states, and physics beyond the Standard Model searches, such as bosonic dark matter and axions.

In this talk, I will show recent results of a hardware upgrade. I also will give an overview on improved analysis methods and report on the progress in developing a complete background model of the MAJORANA DEMONSTRATOR. I will present recent results, and discuss what the prospects for a future ton-scale experiment are.

### Is this abstract from experiment?

Yes

### Internet talk

Yes

### Name of experiment and experimental site

MAJORANA

### Is the speaker for that presentation defined?

Yes

### Details

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