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## **LEGEND-200 Data Acquisition, Monitoring and Calibration**

*Wednesday 30 August 2023 16:07 (1 minute)*

LEGEND-200 is the first phase of a two-phased experiment pursued by the LEGEND Collaboration to search for neutrinoless double-beta decay ( $0\nu\beta\beta$ ) in Germanium-76 (Ge-76). Discovery of  $0\nu\beta\beta$  would demonstrate lepton-number non-conservation while providing critical insight into the nature of the neutrino and its role in the universe. LEGEND-200 recently completed commissioning at the Laboratori Nazionali del Gran Sasso (LNGS), Italy. For initial operations, 101 detectors (142 kg) enriched to  $\sim 88\%$  in Ge-76 were installed. This poster focuses on the extraction of physics signals from Ge-76 detectors and veto systems using the versatile FlashCam digitizers. An overview of the Object-orientated Real-time Control and Acquisition (ORCA) software controlling the data acquisition and storage process is presented. There is also an independent slow controls system providing control and monitoring of LEGEND-200's cryo and electronics subsystems. Aspects of operations, including control, daily monitoring, and weekly calibrations with Thorium-228 sources is also discussed. This work is supported by the U.S. DOE and the NSF, the LANL, ORNL and LBNL LDRD programs; the European ERC and Horizon programs; the German DFG, BMBF, and MPG; the Italian INFN; the Polish NCN and MNiSW; the Czech MEYS; the Slovak SRDA; the Swiss SNF; the UK STFC; the Russian RFBR; the Canadian NSERC and CFI; the LNGS, SNOLAB, and SURF facilities.

### **Submitted on behalf of a Collaboration?**

Yes

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