Contribution ID: **40** Type: **Talk**

Analysis of the backgrounds in the LEGEND-200 experiment

Friday, 4 October 2024 11:50 (20 minutes)

LEGEND-200 is an experiment designed to search for neutrinoless double beta decay ($0\nu\beta\beta$) in ^{76}Ge at LNGS in Italy. In this talk, we present a comprehensive analysis of the backgrounds in the LEGEND-200 experiment. This consists both of the results of several 'special background runs' where components of the experiment were removed to provide a model independent determination of their contribution to the background and in-situ γ screening measurement of their activities. In addition, we developed a Bayesian model of the data by fitting the experimental data over a wide spectral range and various event topologies to a sum of Monte-Carlo simulations. This model provides information on the activities of the various components in the experiment. This work informs future hardware upgrades of LEGEND-200 and the design of LEGEND-1000.
This work is supported by: U.S. DOE, NSF, LANL, ORNL, LBNL LDRD programs; European ERC, Horizon programs; German MPG, BMBF, DFG; Italian INFN; Polish NCN, MNiSW; Czech MEYS; Slovak SRDA; Swiss SNF; UK STFC; Canadian NSERC, CFI; LNGS, SNOLAB and SURF facilities.

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Session Classification: Experiments Background, Models & Simulations