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RES-NOVA: archaeological Pb observatory for astrophysical neutrino sources

Friday, 26 February 2021 10:00 (20 minutes)

RES-NOVA is a new proposed experiment for the hunt of neutrinos from core-collapse supernovae (SN) via coherent elastic neutrino-nucleus scattering (CEvNS) using an array of archaeological Pb-based cryogenic detectors. The high CEvNS cross-section on Pb and the ultra-high radiopurity of archaeological Pb enable the operation of a high statistics experiment equally sensitive to all neutrino flavors. Thanks to these unique features, RES-NOVA will be as sensitive as super-size SN neutrino observatories, while running a detector with a total active volume of only (60 cm)^3. RES-NOVA will be able to reconstruct the SN neutrino parameters with great accuracy (at the 10% level) and it will be sensitive to SN bursts from the entire Milky Way Galaxy with 5 σ statistical significance. During this workshop, the expected detector performance and sensitivity will be presented.

Collaboration name

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