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RES-NOVA: archaeological Pb-based observatory for SN neutrino detection

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 the first cm-scale neutrino telescope, able to reconstruct SN neutrino parameters with great accuracy (at the 10% level). With only a total active volume of $(60\text{ cm})^3$, RES-NOVA will survey the entire Milky Way galaxy for SN events with $>3\sigma$ statistical significance. During the workshop, the expected detector performance and sensitivity will be presented.

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