

## DynHo: A New Trap For Dark Matter

We investigate a new method to search for keV-scale sterile neutrinos that could account for Dark Matter. Neutrinos trapped in our galaxy could be captured on stable  $^{163}\text{Dy}$  if their mass is greater than 2.83 keV. Two experimental realizations are studied, an integral counting of  $^{163}\text{Ho}$  atoms in dysprosium-rich ores and a real-time measurement of the emerging electron spectrum in a dysprosium-based detector. The capture rates are compared to the solar neutrino and radioactive backgrounds. An integral counting experiment using several kilograms of  $^{163}\text{Dy}$  could reach a sensitivity for the sterile-to-active mixing angle  $\sin(\theta)^2$  of  $1e-5$  significantly exceeding current laboratory limits. Smaller mixing angles may be explored with a real-time experiment.

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