Abstract Submitted
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The HUNTER Sterile Neutrino Search Experiment[1] CHARLES MARTOFF, Temple Univ. Dept. of Physics, ERIC HUDSON, PAUL HAMILTON, PETER SMITH, CHRISTIAN SCHNEIDER, UCLA Dept. of Physics and Astronomy, ANDREW RENSHAW, Univ. of Houston Dept. of Physics, PETER MEYERS, Princeton Uni. Dept. of Physics, BASU LAMICHHANE, FRANCESCO GRANATO, XUNZHEN YU, Temple Univ. Dept. of Physics, EDDIE CHANG, UCLA Dept. of Physics and Astronomy, FRANK MALATINO, Univ. of Houston Dept. of Physics, HUNTER TEAM — The HUNTER experiment (Heavy Unseen Neutrinos from Total Energy-momentum Reconstruction) is a search for sterile neutrinos with masses in the 20-280 keV range. The neutrino missing mass will be reconstructed from 131-Cs electron capture decays occurring in a magneto-optically trapped sample of atoms. Reaction-microscope spectrometers will be used to detect all charged decay products with high solid angle efficiency and LYSO scintillators read out by silicon photomultiplier arrays detect x-rays, each with sufficient resolution to reconstruct the neutrino missing mass. The experiment requires EUHV pressure, very uniform ion extraction electric field and electron confinement magnetic field, large solid angle for x-ray detection, and precision in-situ alignment. Procurement of major components of HUNTER is well underway with some innovative solutions to these requirements.

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