

# Summer Particle Astrophysics Workshop 2024

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## TUCAN

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The degree of matter-antimatter asymmetry in the universe is currently unexplained by the Standard Model. While the required forms of symmetry breaking are present in the standard model, in particular CP symmetry breaking, the observed systems are not enough to explain the current asymmetry. A particle with a permanent electric dipole moment (EDM) breaks CP symmetry, and so precision EDM measurements are underway in many systems, including the neutron. The TUCAN collaboration is seeking to provide a measurement of the neutron EDM (nEDM) with unprecedented precision, improving the current upper bound by an order of magnitude. This is made possible by the TUCAN source which will be the most intense source of ultracold neutrons (UCN) in the world, as well as the development of extremely precise magnetometry and magnetic shielding. This talk will give an introduction to the nEDM experimental method, and will discuss some of the technology being developed in order to reach the target sensitivity.

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