

PHYSICS AND ASTRONOMY COLLOQUIUM 10/08/2026

SHINING A NU LIGHT ON THE DARK UNIVERSE



SHAWN WESTERDALE

UNIVERSITY OF CALIFORNIA RIVERSIDE



Despite the massive success of the Standard Model of Particle Physics, it cannot explain the nature of dark matter -- the duck tape that holds the universe together through its gravitational interactions, clearly evident in astrophysical and cosmological observations, and constitutes 85% of the mass of all matter in the universe -- nor can it explain the origins of matter or certain neutrino properties.

As dark matter direct detection experiments approach their ultimate sensitivity, where solar and atmospheric neutrinos limit further sensitivity and the simplest dark matter models have been ruled out, it becomes increasingly critical to test broader classes of dark matter models.

In this talk, we will discuss the state of current and upcoming dark matter searches, how we can probe neutrinos in dark matter detectors and dark matter in neutrino detectors, and ideas for how we can unite and further explore the deeply-entangled questions about the particle nature of dark matter, the origins of matter, and properties of neutrinos



GRAD 2:30 PM
STUDENT MEET
N' GREET
(BARKAS LOUNGE)



COFFEE: 3:00 PM
BARKAS LOUNGE
(3049 PHYSICS)



COLLOQUIUM: 3:40 PM
WINSTON CHUNG HALL
(ROOM 138)



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