

TUESDAY

MARCH 22

12:30 P.M.

RM 184 NSH

Neutrino magnetic moment in the laboratory, astrophysics, and cosmology

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Neutrinos are present in copious amounts at a variety of astrophysical sites such core-collapse supernovae, black hole-neutron star mergers, and the early universe. Thus an understanding of the dynamics, composition, or nucleosynthesis at such sites requires detailed investigations of the relevant neutrino physics. After a brief overview of the role of neutrinos in several astrophysical environments, I will focus on effects of including non-standard neutrino interactions in the form of beyond-the-standard model neutrino magnetic moments. In many cases astrophysical environments are so sensitive to neutrinos that even a magnetic moment ten billion times smaller than the magnetic moment of an electron can have severe consequences. The effect of such small neutrino magnetic moments on cosmological observables such as the light element abundance yields from Big Bang nucleosynthesis will be discussed.