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**Neutrino spin-coherence in a core-collapse
supernova environment**

Tuesday, 1 January 2019, 13:00
Room A304

We examine the prospects for coherent spin-transformations of Majorana neutrinos (i.e., neutrino-antineutrino transformations) in a core-collapse supernova environment. We observe that, under certain conditions, resonant effects can drive substantial neutrino-antineutrino conversion, with potential implications for subsequent flavor evolution as well as the neutron-to-proton ratio (equivalently, the electron fraction) of the material in the supernova envelope. We also investigate a nonlinear feedback mechanism that arises from the coupling between the neutrino distributions and the electron fraction, potentially assisting the stabilization of the resonance.