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The Diffuse Neutrino Background and the Cosmological Star Formation Rate LOUIS STRIGARI, The Ohio State University — The cosmological star formation rate provides a unique window for studying galaxy formation and evolution. The limit on the diffuse neutrino background, produced from the core collapse of the most massive stars, provides the strongest limit on models for the star formation rate. Recent determinations of the star formation rate, in particular from the UV luminosity density evolution, indicate that the neutrino background is in fact near the current flux limit, predicting the milestone first discovery of a cosmological source of neutrinos. Based on recent work with John Beacom, Manoj Kaplinghat, Gary Steigman, Terry Walker, and Pengjie Zhang, I will discuss the implications of this discovery, and the utility of the neutrino background as a measurement of the cosmological star formation rate.

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