Contribution ID: **65** Type: **Plenary talk**

Public lecture: The neutrino in stellar evolution and in the Sun

Tuesday, 6 July 2021 19:35 (30 minutes)

Motivated in part by the recent measurements of the Borexino Collaboration, I will describe the current status of solar neutrino physics, including the impact of measurements on our knowledge of neutrino properties. Questions remain about the sun's metallicity and the equivalence of its weak and electromagnetic luminosities — topics relevantly, respectively, to early solar evolution and to possible "new physics" tests involving solar neutrinos. Additional aspects of the flavor mixing first identified through solar and atmospheric neutrino experiments arise in explosive astrophysical environments, such as supernova cores, neutron star mergers, and the Big Bang. I will describe some of the associated open issues and how they affect current efforts to better characterize such environments through "multi-messenger" observations and analysis.

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