

# Astronomy and Space Sciences Seminar Series

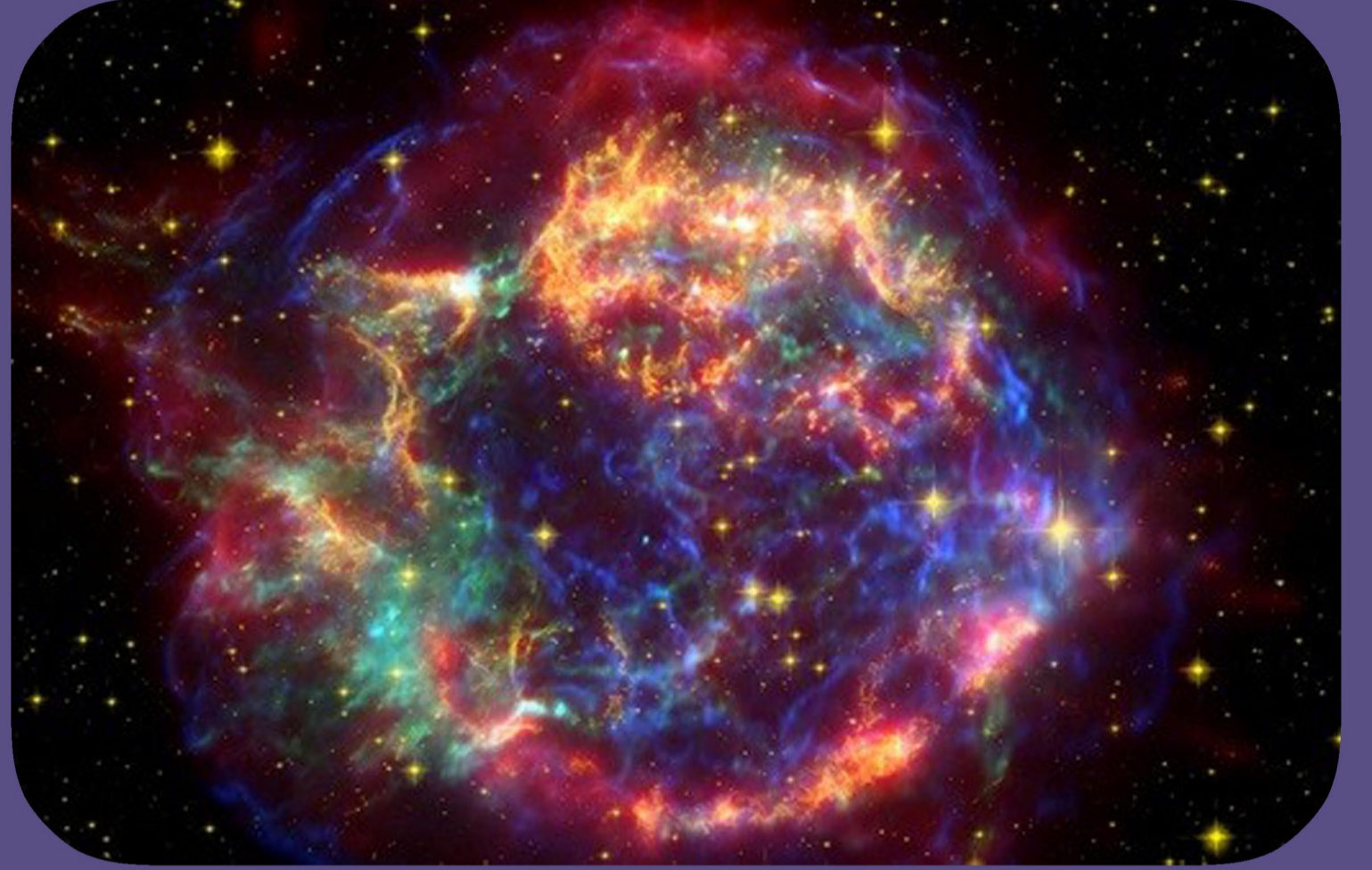
## The Role of Neutrinos in the Element Synthesis and Entanglement in Collective Neutrino Oscillations

Virtual Venue: April 8 2021, 19:00 - 20:00 (GMT +3), Zoom Meeting ID: 947 2174 9212



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Credit: NASA

Earlier theoretical work on neutrino propagation in dense media, in particular the Mikheyev-Smirnov-Wolfenstein effect describing phase changes in neutrino wave functions resulting from their interaction with the background particles, provided an explanation of the measured distortions of the solar neutrinos. A more complex effect takes place in the denser media inside supernovae and neutron-star mergers, where neutrinos interact not only with the background particles but also among themselves. After reviewing key roles neutrinos play in such environments, this many-neutrino problem and resulting collective neutrino oscillations will be discussed. Implications of correlations between neutrinos in this many-neutrino system for nucleosynthesis and terrestrial detection of supernova neutrinos will be explored.

 **YouTube**

Live Stream:

<https://www.youtube.com/c/TUBITAKTBAE>