

## Diversity of Core-Collapse Supernovae Neutrinos

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Not all core-collapse supernovae are the same. This statement is especially true when considering the neutrino signal observed at Earth. This intrinsic diversity in the neutrino signal can tell us a great deal regarding the details of what is happening in the cores of massive stars. I will show predictions of variations in the early neutrino signal due to variations in the input physics. The largest variation, which leads to differences in the total neutrino luminosity up to a factor of 4, arises from the progenitor model and can be easily discernible in current supernova neutrino detectors. The progenitor variation of the neutrino signal is directly proportional to the presupernova structure of the core and allows a direct measurement of an otherwise shrouded quantity. Such a measurement would provide constraints on the late stages of stellar evolution.

**Primary author:** Dr O'CONNOR, Evan (CITA)

**Presenter:** Dr O'CONNOR, Evan (CITA)

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