



Contribution ID: 209

Type: Parallel talk

## Neutrino Signals From Accretion-Induced Collapse of White Dwarfs

*Tuesday, 4 July 2023 15:15 (25 minutes)*

About 90% of stars end up as white dwarfs, and there should be about 10 billion white dwarfs in the Milky Way alone. It is well-known that a white dwarf reaching the Chandrasekhar limit of about 1.4 solar masses may undergo a thermonuclear explosion (type Ia supernova). However, it may also go through the Accretion-Induced Collapse (AIC) due to electron capture by neon and magnesium at its core. We perform neutrino radiation hydrodynamic simulations of AIC. A proto-neutron star forms after the core bounce, and a very bright neutrino burst comparable to that of a core-collapse supernova is emitted. There has been no confirmed observation of AIC yet. However, The upcoming multi-messenger observations, especially neutrino detections, offer great opportunities to study AIC with unprecedented details.

**Primary author:** YIP, Chun Ming (The Chinese University of Hong Kong)

**Presenter:** YIP, Chun Ming (The Chinese University of Hong Kong)

**Session Classification:** Parallel talks 1: Astro-particle Physics & Cosmology