



## Poster session 4 – Friday 8 July

### P4.085 Supernova Neutrino Observation at JUNO

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*on behalf of JUNO collaboration*

Measuring the neutrino burst from the core-collapse supernova (SN) can reveal the fundamental mechanism of supernova explosion, thus is a premier target of neutrino physics and astrophysics. The Jiangmen Underground Neutrino Observatory (JUNO) has a target of 20k ton liquid scintillator with unprecedented energy resolution ( $3\%/\sqrt{E}$ ). For a typical galactic distance of 10 kpc and typical SN parameters, JUNO can observe about 5000 electron anti-neutrinos via inverse beta decay, around 2000 events from all-flavor elastic neutrino-proton scattering, more than 300 events from neutrino-electron scattering, and a few hundred neutrino charged-current and neutral-current interactions on  $^{12}\text{C}$ . With good statistics and flavor information, we will present the physics potential of SN neutrino studies at JUNO, including determination of the SN direction, evaluation of the SN neutrino luminosities and energy spectra, investigate the model-independent features of neutrino oscillations, constrain absolute neutrino masses, the neutrino mass hierarchy and the collective neutrino oscillations, etc.