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## High-Energy Neutrinos from Supernovae

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Neutrinos from supernovae (SNe) are crucial probes of explosive phenomena at the deaths of massive stars and neutrino physics. High-energy neutrinos are produced through hadronic processes by cosmic rays, which can be accelerated during interaction between the SN ejecta and circumstellar material (CSM). We investigate high-energy neutrino emission from Galactic SNe. Recent observations of extragalactic SNe have revealed that a dense CSM is commonly expelled by the progenitor star. We show that IceCube/KM3Net can detect about 10-1000 events from Type II-P/II-L SNe at a distance of 10 kpc. A successful detection will give us a multi-energy neutrino view of SN physics and new opportunities to study neutrino properties, as well as clues to the cosmic-ray origin. GeV-TeV neutrinos may also be seen by KM3Net, Hyper-Kamiokande, and PINGU.

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