



Contribution ID: 7

Type: **Parallel Contributed Talk**

SNEWPY: a pipeline from supernova simulations to detector signals

Wednesday, 24 February 2021 17:50 (20 minutes)

Current neutrino detectors will observe hundreds to thousands of neutrinos from a Galactic supernovae, and future detectors will increase the yield by an order of magnitude or more. With such a data set there is potential for a huge increase in our understanding of the explosions of massive stars, nuclear physics under extreme conditions, and the properties of the neutrino. However there is a large gulf between supernova simulations and the corresponding signals in detectors which will make any comparison between theory and observation very difficult. SNEWPY is an open-source software package which bridges this gap. The SNEWPY code can interface with simulation data to generate a time series of neutrino spectra at Earth which it can then process with the SNOwGLOBES software to calculate the neutrino event rates. SNEWPY will then collate the output from SNOwGLOBES into the observable channels of each detector. In this talk I give an overview of SNEWPY, demonstrate its current capabilities, and discuss our plans for future directions.

Collaboration name

SNEWS 2.0

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Session Classification: Data Science and Detector R&D