

Supernova detection capabilities of gadolinium doped water and water-based liquid scintillator detectors

Friday, 23 June 2017 10:30 (15 minutes)

New technologies have been developed in the last decade that may provide significant improvements in the physics capabilities of water-based detectors. These technologies, such as gadolinium-doping and water-based liquid scintillator (wbLS), may lead to better characterizations of supernova bursts, in turn providing a clearer picture of the underlying core-collapse physics. An overview of the sensitivity of these technologies to supernova neutrinos will be provided for a 1-kiloton detector, as well as the opportunities and challenges such technologies can provide in terms of pointing capabilities. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344. Release number LLNL-ABS-728808.

Primary author: Dr BERGEVIN, Marc (LLNL)

Presenter: Dr BERGEVIN, Marc (LLNL)

Session Classification: Working Group: Neutrino Physics

Track Classification: Neutrino Physics Working Group