

IceCube-Gen2: The Window to the Extreme Universe

Tuesday 23 November 2021 17:15 (15 minutes)

IceCube-Gen2 is a planned extension of the IceCube Neutrino Observatory at the South Pole designed to study the high-energy neutrino sky from TeV to EeV energies. IceCube-Gen2 will increase the annual rate of detected neutrinos by a factor of 10 by deploying 120 new strings with attached optical sensors in the ice sheet, and through the addition of a radio array expand the observed energy range by three orders of magnitude. The radio technique is a cost-effective way to instrument the huge volumes needed for the detection of ultra-high energy neutrinos at the predicted flux levels. IceCube-Gen2 will play an essential role in shaping the new era of multi-messenger astronomy, fundamentally advancing our knowledge of the high-energy universe through the combination of neutrino, electromagnetic, and gravitational wave observations.

I will report on the status of the project and expected sensitivity. I will present the Radio Neutrino Observatory in Greenland (RNO-G) that is currently under construction and serves as a field test for Gen2 radio. I will highlight the areas of Swedish contribution: development of novel optical sensors, intelligent trigger system based on deep learning for the radio array, and wind generators for autonomous operation in harsh polar environments.

Author: GLASER, Christian

Presenter: GLASER, Christian

Session Classification: Tuesday afternoon session 3