

Summer Blot – HEP Seminar – January 31, 2020 @ 2:45 in
room 1300 BPS
DESY

Title: Measuring Neutrino Oscillations at the End of the World

Abstract: The IceCube Neutrino Observatory is a pioneering, cubic kilometre-sized neutrino telescope located at the geographic South Pole. Since its discovery of the astrophysical neutrino flux, IceCube has continued to provide invaluable knowledge about both neutrino sources and neutrino properties at the GeV-PeV scale through its detection of neutrino interactions via Cherenkov radiation in the optically clear, deep glacial ice. In this talk I will focus on the most recent measurements of atmospheric neutrino oscillations with the IceCube DeepCore sub-array. Recent improvements in detector calibration and modelling of systematic uncertainties have paved the way for new measurements with unprecedented sensitivity above 5 GeV. I will also describe our progress on a near-future detector extension, the IceCube Upgrade, which will deploy new optical modules into the ice along with improved calibration devices to further enhance the performance of the IceCube Neutrino Observatory.