

Prize Talk

PV XIX Fri 13:00 HSZ/AUDI

The science and technology of DUNE and its future as an international neutrino observatory — ●STEFAN SÖLDNER-REMBOLD — University of Manchester, United Kingdom — Laureate of the Max-Born-Prize 2023

The preponderance of matter over antimatter in the early universe, the dynamics of the supernovae that produced the heavy elements necessary for life, the search for physics beyond the standard model – these mysteries at the forefront of particle physics and astrophysics are key to understanding the evolution of our universe. DUNE is an interna-

tional neutrino experiment dedicated to addressing these questions as it searches for leptonic charge-parity symmetry violation, stands ready to capture supernova neutrino bursts, test the three-flavour paradigm and search for new physics. To achieve its science goals, it will employ the technology of liquid-argon time projection chambers at an unprecedented scale and precision. DUNE will comprise a far detector located at the SURF laboratory in South Dakota and a near detector close to the neutrino beam source at Fermilab near to Chicago. The presentation will introduce the science and technology of DUNE and discuss the status of the international project.