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IceCube and IceCube-Gen2

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The IceCube experiment, a cubic kilometre neutrino telescope, was built at the South Pole with the goal of observing high-energy neutrinos from beyond our solar system. This goal has been achieved with spectacular success, and now the collaboration aims to identify the sources of these interstellar neutrinos. At the heart of the IceCube detector a more densely instrumented region, called DeepCore, enables atmospheric neutrinos, with energies as low as 5 GeV, to be studied. These studies have led to a number of measurements of neutrino-oscillation phenomena, which will be the focus of my talk. I will present recent measurements of neutrino oscillation parameters and tau-neutrino appearance, and a search for sterile neutrinos. I will then talk about the future, outlining plans for the next phase of neutrino astronomy at the South Pole, IceCube-Gen2, and presenting the physics case, at both low and high energies, for this exciting new venture.

Summary

Presenter: EVANS, Justin (University of Manchester (UK))