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Hunting for New Physics in Neutrino Oscillation Experiments

Monday 1 February 2021 16:00 (40 minutes)

The goal of this phenomenology-oriented talk is to highlight some of the manifold ways in which neutrino oscillation experiments contribute to the global search for physics beyond the Standard Model. We will in particular discuss searches for sterile neutrinos (for which there exist some tantalizing but controversial hints), searches for new interactions in an effective field theory context, and searches for dark matter.

Moreover, we will highlight the tremendous potential of neutrino “Near Detectors” for probing light and weakly interacting new particles.

Throughout the talk, we will also highlight the Standard Model challenges that current and future neutrino oscillation experiments are facing, in particular with regard to precision prediction for neutrino-nucleus interactions.

Presenter: KOPP, Joachim (CERN)