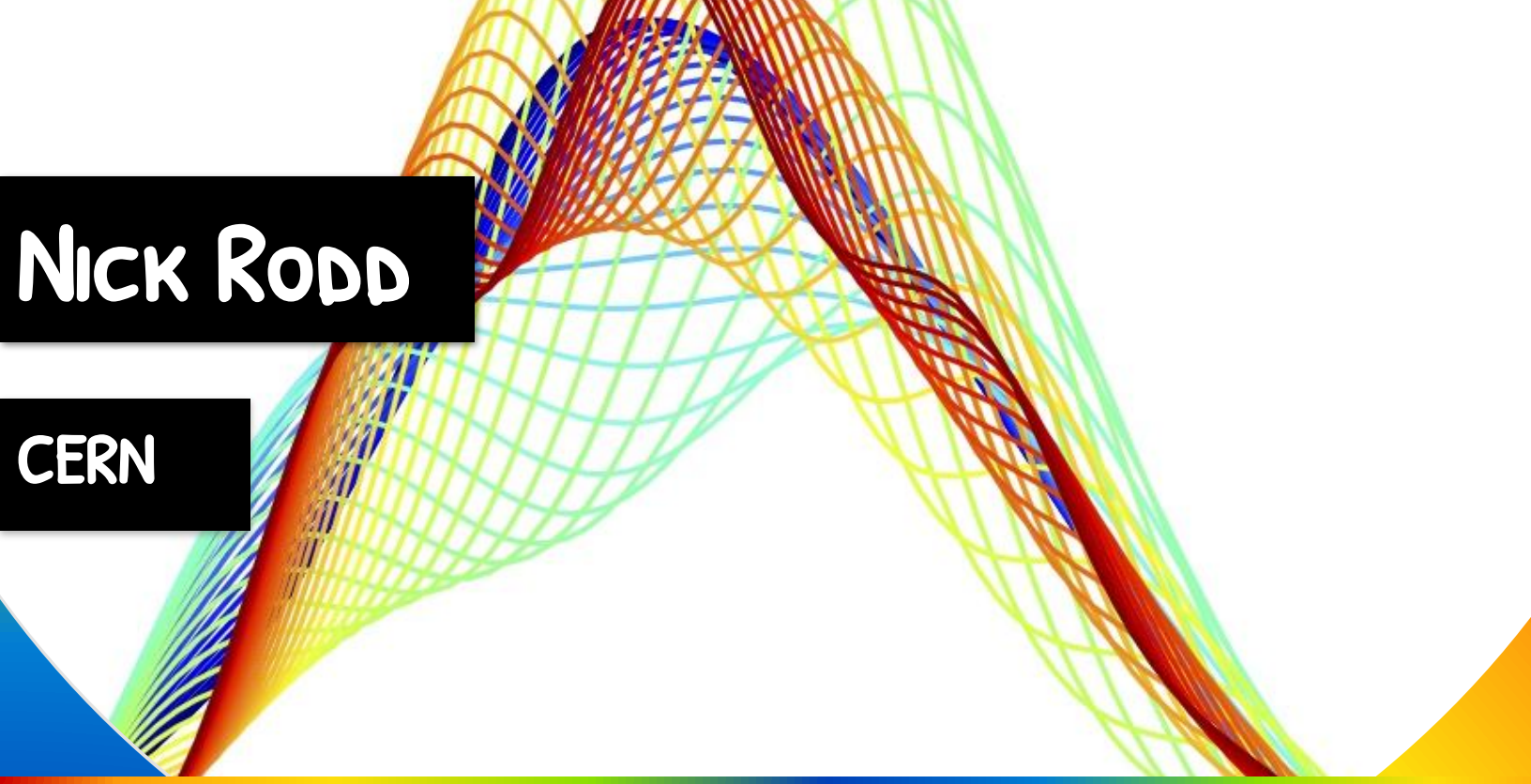

Nick Rodd

CERN

New ideas for the axion dark matter program

23 November 2021 • 3:30 pm EST • *Virtual Seminar*

The dark matter of our Universe may well be made up of ultralight particles called axions. If so, then dark matter would behave like a wave near the location of the Earth, a dramatic departure from the picture of a gas of particles that would apply if dark matter were a heavier particle like a WIMP. Searching for wave-like dark matter requires new ideas, and the coming decade will bring dramatic improvement in the axion dark-matter program as new experimental designs move beyond the proof of principle stage. In this talk I will outline two new ideas that exploit this experimental progress. The first is to combine the results from two or more instruments in order to perform interferometry directly on the dark-matter wave. The second is to show that instruments designed to search for axion dark matter are also sensitive to a signal from relativistic axions produced in the early universe that constitute a residual Cosmic axion Background (CaB).

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