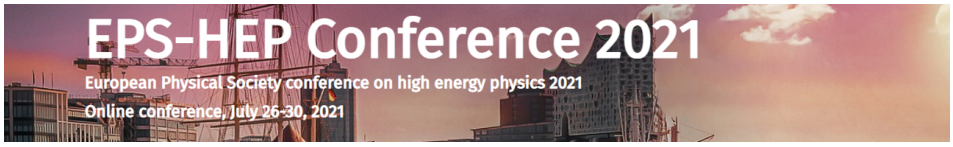

Contribution ID: **391** Type: **Parallel session talk**

CP-Violating Neutrino Non-Standard Interactions in Long-Baseline-Accelerator Data

Tuesday 27 July 2021 16:00 (20 minutes)

Neutrino oscillations in matter provide a unique probe of new physics. Leveraging the advent of neutrino appearance data from NOvA and T2K in recent years, we investigate the presence of CP-violating neutrino non-standard interactions in the oscillation data. We first show how to very simply approximate the expected NSI parameters to resolve differences between two long-baseline appearance experiments analytically. Then, by combining recent NOvA and T2K data, we find a tantalizing hint of CP-violating NSI preferring a new complex phase that is close to maximal: $\phi_{e\mu}$ or $\phi_{e\tau} \approx 3\pi/2$ with $|\epsilon_{e\mu}|$ or $|\epsilon_{e\tau}|\sim$0.2. We then compare the results from long-baseline data to constraints from IceCube and COHERENT.

First author

Julia Gehrlein

Email

jgehrlein@bnl.gov

Collaboration / Activity

Theory

Primary author: GEHRLEIN, Julia (Brookhaven National Laboratory)

Co-authors: DENTON, Peter (Brookhaven National Lab); PESTES, Rebekah (Virginia Tech)

Presenter: GEHRLEIN, Julia (Brookhaven National Laboratory)

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