



Contribution ID: 34

Type: **Poster**

Causal instabilities of the Chern-Simons magnetohydrodynamics

Wednesday 6 April 2022 18:18 (4 minutes)

This talk presents a novel instability in the Chern-Simons (or axionic) magnetohydrodynamics (MHD), arising from the spatial inhomogeneity of the axion-like field. In particular, this instability amplifies the Alfvén waves in certain regions of spacetime in a way that is clearly parity-violating. The Alfvén velocity reaches the speed of light in such regions, but it never exceeds it.

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Session Classification: Poster Session 1 T02

Track Classification: Chirality, vorticity and spin polarization