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Causal instabilities of the Chern-Simons magnetohydrodynamics

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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 Alfven waves in certain regions of spacetime in a way that is clearly parity-violating. The Aflven velocity reaches the speed of light in such regions, but it never exceeds it.

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