

Alpha-unstable flows and the fast dynamo problem

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The fast dynamo problem concerns the amplification of magnetic fields by the motion of an electrically charged fluid. In the linear approximation, this manifests as exponential growth of the magnetic energy, at a resistivity-independent rate. In this talk, I will provide a construction of a Lipschitz, divergence-free and time-independent velocity field that is a fast dynamo on the whole space. The talk is based on joint work with Michele Coti Zelati and Massimo Sorella.