

Abstract Submitted  
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**Change of Magnetic Field Topologies in Plasma Disk Structures with Differential Rotation\*** BRUNO COPPI, MIT — Axisymmetric disk structures with a (toroidal) differential rotation balanced by a central gravity can be subject to the onset of collective modes that can produce new magnetic field topologies. Considering a currentless disk imbedded in a seed vertical field as a start, the driving factor of the relevant modes is the combination of a significant vertical temperature gradient and the differential rotation [1]. The modes can be axisymmetric producing periodic current channels, with alternate directions, or tridimensional consisting of radially localized trailing spirals. The two-dimensional magnetic field topologies expected from the non-linear evolution of these modes that are solutions of the relevant equilibrium equations are presented. \*Sponsored in part by the U.S. DOE.

[1] B. Coppi, *A&A* **321**, 504 (2009).

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