

Abstract Submitted
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**Non-thermal Plasmas Around Black Holes, New Configurations,
Magnetic Field Generation and Relevant Collective Modes*** M. ASGARITARGHI, CfA, B. COPPI, MIT — The radiation emission from Shining Black Holes is most frequently observed to have non-thermal features. It is therefore appropriate to consider relevant collective processes of plasmas surrounding black holes [1] that contain high energy particles with non-thermal distributions in momentum space. For simplicity we use a fluid description considering the case where significant temperature anisotropies are present. These anisotropies are shown to have a critical influence on: a) the existence and characteristics of stationary plasma and field configurations; b) the excitation of magneto-gravitational modes driven by temperature anisotropies and differential rotation; c) the generation of magnetic fields over macroscopic scale distances; d) the outward transport of angular momentum. *Sponsored in part by the U.S. D.O.E. [1] B. Coppi, Phys. of Plasmas, 18, 032901 (2011).

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