

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Gravitational Influences on Magnetic Field Structure in Accretion Disks* K. SCHNECK, B. COPPI, MIT — The structure of the magnetic fields associated with plasma disks surrounding black holes is identified when the effects of gravitational and Lorentz forces on the dynamics of the disk are comparable. The effects of corrections to the radial gravitational force are explored within the geometry of a thin disk. A significant external magnetic field component is considered, along with an internal component due to the azimuthal current configuration. The relation of the resulting configuration to the field structure when the gravitational force can be neglected^{1,2} is discussed. The relevant equations for the pseudo-Newtonian potential³ describing the physics near the event horizon of the black hole are also derived and the physical consequences are explored. *Sponsored in part by the U.S. Department of Energy and the MIT Undergraduate Research Opportunities Program.

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²Coppi, B. and Rousseau, F. *Astrophysical Journal*, 641: 458-470 (2006)

³Paczyński, B. and Wiita, P. J. *Astron. Astrophys.* 88: 23 (1980)

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Date submitted: 22 Jul 2009

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