The effect of magnetic resistivity in advection dominated accretion disk with poloidal magnetic field

J Ghanbari¹, S Abbasi² and A Tajmohammadi ¹

1. Department of Physics, school of Sciences, Ferdowsi University of Mashhad (FUM)
2. School of Physics, Damghan University of Basic Sciences (DUBS)
E-mail: jamghanbari@yahoo.com

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Abstract
In this work, we carry out self–similar solutions of viscous-resistive accretion flows around a magnetized compact object. We consider an axi-symmetric, rotating, isothermal steady accretion flow, which contains a poloidal magnetic field of the central star. The dominant mechanism of energy dissipation is assumed to be the turbulence viscosity and magnetic diffusivity due to the magnetic field of the central star. We explore the effect of viscosity, magnetic diffusivity and advection on a rotating disk. We show that dynamical quantities of advection dominated accretion flows (ADAFs) are sensitive to the advection, viscosity and magnetic diffusivity parameters.

Keywords: accretion, accretion flow, advection, magnetic field, magnetic resistivity

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