

SOLITARY VORTEX STRUCTURE IN A CLASS OF SELF-GRAVITATING ACCRETION DISKS

Miroslava Vukcevic

Astronomical Observatory, Volgina 7, 11060 Belgrade, Serbia

E-mail: vuk.mira@gmail.com

We consider a class of steady-state self-gravitating accretion disks for which efficient cooling mechanisms are assumed to operate so that the disk is self-regulated at a condition of approximate marginal Jeans stability. We treat the disk in nonlinear regime and we derive conditions for existence of nonlinear stable structure in a shape of twodimensional soliton. We explain why the nonlinear regime is important in accretion disk dynamics.