

Radiation hydrodynamic simulations of radiation pressure-dominated accretion flows

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We investigate the radiation pressure-dominated accretion flows around compact objects, conducting the two-dimensional radiation-hydrodynamic (2D-RHD) simulations. We find the quasi-steady structure of super-critical accretion flows and out-flow driven by the strong radiation force. We also find the limit-cycle oscillation of the disks, when the mass accretion rate is moderately exceeds the Eddington rate. Our numerical results can explain the variation amplitude and duration of the recurrent outbursts observed in microquasar, GRS 1915+105.