The Rossby Wave Instability in the gravity well of Kerr black holes

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Abstract

The Rossby Wave Instability (RWI) has been proposed to explain the High-Frequency Quasi-Periodic Oscillation thought to occur in the close vicinity of black-holes but this early work was done in the pseudo-Newtonian approach. Here we present the first general relativistic hydrodynamics simulations of this instability not only proving its theorized existence in a full GR environment but also studying the effect of the strong gravity on the instability and how it relates to observations.

Keywords: QPO, GR, spin

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