

PROBING NEUTRON STAR/BLACK HOLE ACCRETION DISKS WITH KEPLER AND SWIFT/XRT

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The Kepler mission, while designed for exoplanet search, has proved powerful in understanding the accretion disks around compact objects for its unique capability of continuous monitoring with unprecedented photometric precision. Previous Kepler observations of symbiotics and Cataclysmic Variables have successfully probed the structures of the accretion flows around white dwarfs. Here we seek to probe the accretion flows around more compact neutron stars and black holes, a regime never been studied before. For this purpose, a sample of low-mass X-ray binary (LMXB) candidates in the Kepler field have been selected from the ROSAT All Sky Survey, and subsequent Chandra/ACIS observations have identified seven LMXBs with unique optical counterparts suitable for Kepler observations. The proposed Kepler continuous monitoring of these seven LMXBs, combined with daily and weekly Swift/XRT monitoring for two brightest LMXBs in X-ray, will probe the accretion disk structure, its evolution with accretion rate, and how the accretion flow proceeds inward.