

Abstract Submitted  
for the CUWIP21 Meeting of  
The American Physical Society

**X-ray observations of 4U1957+11: potentially the fastest spinning Kerr black hole in the galactic halo**<sup>1</sup> ERIN BARILLIER, MICHAEL NOWAK, Washington University, St. Louis — The black hole candidate 4U1957+11 is part of an X-ray binary exhibiting peculiar behavior. The measured high temperature and low normalization (disk area relative to its distance) of the disk lead to an inferred low mass and extremely high angular momentum, challenging our current understanding of black holes. We analyzed 10 observations from the NuSTAR X-ray telescope to obtain precise measurements of flux and color temperature (a measure of the energy at which the spectrum of the source peaks). As the color temperature depends on the accretion rate, spin, and inclination of the disk while the flux depends on the inclination, mass, and distance, we hope to constrain those parameters. Relativistic effects of the system allow for strong measurements of the spin and inclination of the disk, thereby constraining the mass and distance. We studied simultaneous observations on the NICER telescope with precise timing and found low variability and no evidence of a pulsar, which would have been evidence that 4U1957+11 was a mis-identified neutron star. This low variability places constraints on the luminosity of the system (and therefore the accretion rate, mass, and distance).

<sup>1</sup>I appreciate the continued support of the McDonnell Center for Space Sciences as well as NASA (through NASA Grant 80NSSC19K1583) and JPL (through JPL grant 1617863).

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Date submitted: 03 Jan 2021

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