

Abstract Submitted  
for the APR20 Meeting of  
The American Physical Society

**Accretion - Wind Interaction In IC 10 X-1 : Black Hole+Wolf-Rayet HMXB** SAYANTAN BHATTACHARYA, ANKUR ROY, RIGEL C. CAPPALLO, SILAS G. T. LAYCOCK, DIMITRIS M. CHRISTODOULOU, University of Massachusetts, Lowell — IC 10 X-1 is a massive high mass binary, it consists of a Black hole and a Wolf - Rayet star with a period of 34.9 h. In a series of xray observations, it's discovered to have a eclipsing period of  $\approx 5$  h. The source shows consistent variability around  $7 \times 10^{37}$  erg s<sup>-1</sup>, except in a spectral hardening event in 2009, But when the optical RV measurements made from the He II are compared with the x-ray eclipse ephemeris they shows a phase shift. Either the He II line originates in a shadowed region of the stellar wind, hence not directly tracing the motion of the WR star, or the BH is being eclipsed by trailing shock/plume. This motivates us to look into accretion - wind interaction in this binary system. A shock front must be forming where the WR wind collides with wind from the BH/accretion disk. To understand the influence of x-rays on the WR's optical spectrum we used CMFGEN to model the spectrum with x-rays in the wind which mimics x-rays coming from the BH. CMFGEN takes into account Non-LTE atmosphere and solves for the radiation field in comoving coordinate, but it uses simple spherical geometry which doesn't account for the asymmetries. Future work will account for the asymmetric geometry and will use archival optical spectra to generate RV plots.

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Date submitted: 12 Jan 2020

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