

Abstract Submitted
for the CUWIP22 Meeting of
The American Physical Society

Electromagnetic Detectability of Binary Supermassive Black Holes with the Vera Rubin Observatory KAYLEE GRACE, MEGAN DAVIS, JONATHAN TRUMP, University of Connecticut — Supermassive black holes (SMBHs) can end up as binary pairs through galaxy mergers and are important sources of gravitational waves. Although several binary candidates have been identified in previous work, none have been fully confirmed, yet. These pairs are difficult to detect since accreting, single SMBHs can have pseudo-periodic light curves due to stochastic noise that can mimic the signature of binary SMBHs. The Vera Rubin Observatory (VRO) will be critical for getting the data necessary to confirm the existence of binary SMBHs. The false-positive binary detection rate for VRO can be determined by attempting to recover sinusoidal binary signals, represented by either a smooth sine wave or a sawtooth wave, within simulated light curves. In this project, we simulated over four million light curves for VRO and have applied computationally inexpensive analysis methods to recover the simulated signals. Understanding the false-positive detection rate of these objects by VRO is vital for the detection confirmation that has eluded us thus far.

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Date submitted: 05 Jan 2022

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