Abstract Submitted
for the APR21 Meeting of
The American Physical Society

The Landscape of Disk Outflows From Black Hole - Neutron Star Mergers RODRIGO FERNANDEZ, University of Alberta, FRANCOIS FOUCART, University of New Hampshire, JONAS LIPPUNER, Los Alamos National Laboratory — Mass ejection from accretion disks formed in mergers of black holes (BHs) and neutron stars (NSs) is a significant contributor to the production of r-process elements and to the kilonova transient. However, there has been a limited exploration of the broad parameter space of disk outflows, which becomes relevant given the event rate of O3 and the lack of any detected electromagnetic counterparts. I'll report the results of 27 high-resolution, axisymmetric, long-term viscous hydrodynamic simulations of post-merger BH accretion disks that include neutrino emission/absorption and post-processing with a nuclear reaction network. We characterize the dependence of the fraction of the disk mass ejected on disk compactness (BH mass over initial disk radius) and on the disk mass at fixed compactness. The radioactive luminosity from the disk outflow alone available to power kilonovae spans two orders of magnitude over the BH-NS parameter space. For most plausible binary configurations, this disk contribution is well below the kilonova mass upper limits for GW190814.

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Date submitted: 11 Jan 2021 Electronic form version 1.4