Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Probing scalar-tensor theories with gravitational waves from neutron star-black hole binaries[1] KENT YAGI, ZACK CARSON, University of Virginia, BRIAN SEYMOUR, University of Cambridge — The extreme-gravity collisions of binaries with one black hole and one neutron star provide for excellent tests of general relativity. In this talk, we explain how well one can constrain theories beyond general relativity with additional scalar fields that allow for spontaneous scalarization of neutron stars and those motivated from string theory. We find that existing bounds can be improved with current gravitational-wave detectors if the black hole mass is sufficiently small. Bounds will further improve by many orders of magnitude with future detections, especially by combining multiple events.

[1]NSF, Sloan Fellowship, Owens Fund

Kent Yagi
University of Virginia

Date submitted: 14 Dec 2019 Electronic form version 1.4