

Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Neutron Stars in Effective Fly-Bys JOSE ARREDONDO,
NICHOLAS LOUTREL, Princeton University — Eccentric compact object (CO)
binaries, such as black hole - neutron star binaries, pose not only a challenge for
gravitational wave detectors, but also provide a probe into the structure of COs. At
closest approach between the objects, an f-mode is excited in the neutron star while
a burst of gravitational radiation is emitted. In order to model the signals from
these eccentric binaries falling in the LIGO band, we have developed an effective
fly-by (EFB) waveform for a black hole - neutron star binary in the post-Newtonian
formalism. This waveform model captures the gravitational wave emission from the
f-mode and its effect on the orbital phase. We discuss the prospect of constraining
the neutron star equation of state with these EFB waveforms.

Jose Arredondo
Princeton University

Date submitted: 07 Jan 2020

Electronic form version 1.4