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Measuring the neutron star tidal Love number with inspiral waveforms MARC FAVATA, Montclair State University — The tidal Love number parameterizes how easily a binary companion deforms a neutron star. This deformation modifies the gravitational field near the neutron star and imprints itself on the binary orbit and gravitational waveform. Measuring the Love number with LIGO or other detectors will help constrain the neutron star equation of state (which is uncertain at high densities). I will discuss an improved parameterization of the waveform's Love-number dependence. I will also discuss how systematic errors will make this number difficult to measure. These systematic errors could arise from unknown post-Newtonian terms that enter at lower orders than tidal effects, or from neglecting small neutron star spins or binary eccentricity.

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