Poster No. II-10

Gravitational-wave signal from binary neutron stars: a systematic analysis of the spectral properties

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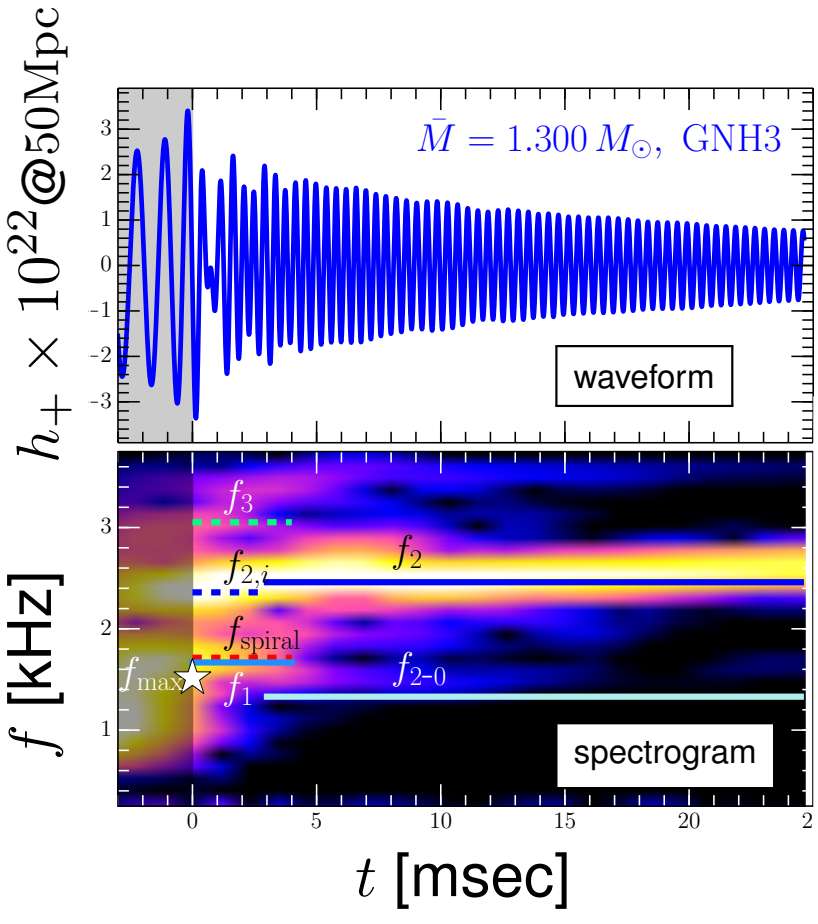
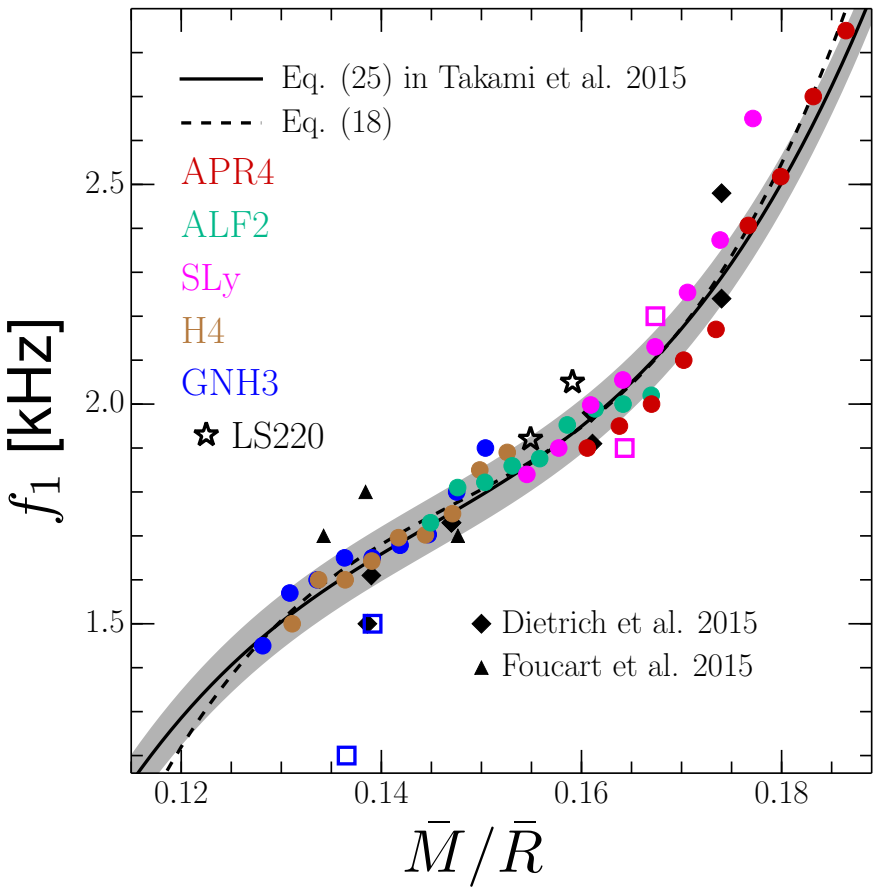
NPCSM 2016, 1 Nov 2016.

GWs from HMNSs



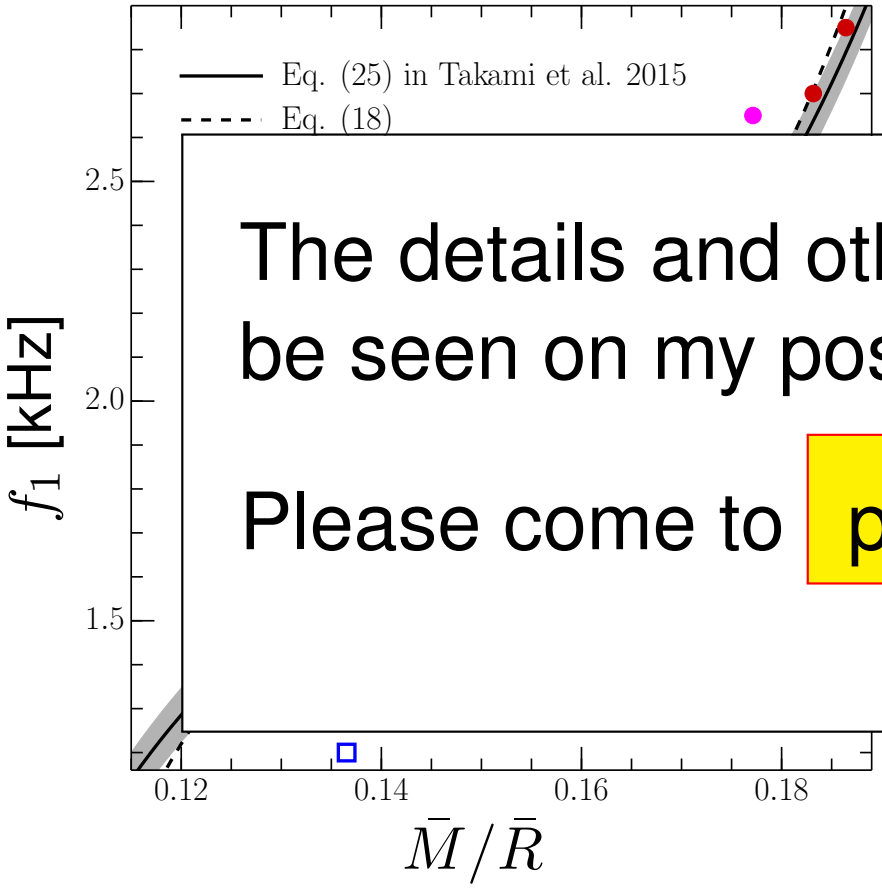
- There is no doubt that GWs from HMNSs have a lot of important information, and the a series of advanced ground-based detectors such as a LIGO will be able to receive it within a few yeas.
- They are including many typical frequencies, which are named $f_{\rm max}$, f_1, f_2, f_3, f_{2-0}, $f_{\rm spiral}$ and so on (see the left figure).
- In our previous work, therefore, we had the systematic investigation by a large number of numerical-relativity simulations of binaries with nuclear EOSs.

GWs from HMNSs



- Indeed, the powerful correlations between the frequencies and physical quantities of the binary system were shown, *e.g.*, the figure show the universal relation between f_1 and stellar compactness $\bar{M}/\bar{R}$.
- However, Bauswein et al. (2015) claimed *"such a mass-independent, universal relation does not exist"*, when they considered the wide mass range $\bar{M} = 1.2 - 1.5 M_\odot$.
- In this study, we extend our previous work by using the wide mass range and additional analyses. Then the universal relation is still robust even for high- or low-mass binaries. We also realize the reason why the mismatch found in Bauswein et al. (2015) arose.

GWs from HMNSs



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The details and other correlations can be seen on my poster.

Please come to poster No. **II-10**.