

The host galaxies of merging compact objects

In the new era of gravitational-wave astronomy, understanding the properties of the host galaxies of merging compact objects is crucial.

I will present a method to explore the galaxies where merging compact objects form and merge, by combining galaxy catalogs from cosmological simulations together with state of the art population synthesis models.

I will show that the merger rate per galaxy strongly correlates with the stellar mass of the host galaxy for merging double neutron stars (DNS), double black holes (DBH), and black hole neutron star binaries (BHNS).

I will also discuss the merger rate per galaxy in terms of early and late-type galaxies. Our results show that most of DNSs, BHNSs, and DBHs merging in the local Universe are in early-type galaxies.

Finally, I will present how these results can assist the electromagnetic follow-up search of future gravitational wave detections.

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