Binary Neutron Star Impostors Event GW190814[1] ANTONIOS
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Illinois at Urbana-Champaign, USA, KOJI URYU, University of the Ryukyus, Okinawa, Japan — In the first part of this talk I will address the following question:
can we distinguish a binary black hole undergoing a merger from a binary neutron
star if the individual compact companions have masses that fall inside the so-called
mass gap of $3 - 5\ M_\odot$? For neutron stars, achieving such masses typically requires
extreme compactness. I therefore will present general relativistic initial data and
evolution simulations of binary neutron stars-the impostors- initially in quasiequilibrium circular orbits and supported by an EOS near the causal limit that exhibit
extreme compactness. I will compare their gravitational waveforms with those of
merging black hole binaries of the same mass. In the second part I will discuss
event GW190814 of a merging binary having a $\sim 23 M_\odot$ black hole and a $\sim 2.6 M_\odot$
compact companion. I will explore some consequences of the assumption that the
secondary was a neutron star.

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