

PHAROS Conference 2020: The multi-messenger physics and astrophysics of neutron stars



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Super-Massive Neutron Stars and Compact Binary Millisecond Pulsars

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The maximum mass of a neutron star has important implications across multiple research fields, including astrophysics, nuclear physics and gravitational wave astronomy. Compact binary millisecond pulsars are key to constraining such maximum mass observationally. Applying a new method to measure the velocity of both sides of the companion star, we previously found that the compact binary millisecond pulsar PSR J2215+5135 hosts one of the most massive neutron stars known to date, with a mass of 2.27 ± 0.16 Msun. Here I will review the neutron star mass distribution in light of this and more recent discoveries, focusing on super-massive neutron stars with masses above 2 Msun.

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