

## PHAROS Conference 2019: the multi-messenger physics and astrophysics of neutron stars



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### What can we learn about neutron star cores from gravitational waves?

Neutron-star mergers can help us understanding what kind of matter exists in the core of compact stars, in addition to new states of matter generated during the events themselves. More specifically, gravitational waves from neutron-star mergers can tell us if quarks can exist in a deconfined way in our universe. Our results include possible signals for a strong deconfinement phase transition in merger simulations and, before that takes place, signals that can provide evidence for the strength and the role played by repulsive interactions in neutron stars.

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