

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



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### Studying the Neutron Star Interior in Transient Low-Mass X-Ray Binaries

Neutron star low-mass X-ray binaries with transient accretion are unique systems to study the interior of neutron stars. During the accretion phase the crust of the neutron star is strongly heated and most of this heat flows into the core. During the quiescence phase the star relaxes back to thermal equilibrium and observation of this phase allows to map the physical properties of the stellar crust. Long term evolution also gives information about the core properties as its neutrino emission efficiency and its specific heat. In contradistinction to gravitational wave signals from mergers and mass or mass-radius determinations that are mostly sensitive to bulk properties of dense matter, such studies allow us to probe the low energy excitation levels of this matter. I will review what has been learned from these studies in the last few years by the study of almost a dozen such systems.

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