

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



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How giant magnets shine and slowly fade away (Invited)

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The coupled evolution of magnetism and temperature inside neutron stars has a direct imprint on the rotational and spectral properties observed in their population. These different manifestations of isolated neutron stars can be unified under an evolutionary scenario where the magnetic field and its long-term evolution plays a key role in shaping the X-ray detectability. In addition, the magnetosphere enriches the observable properties, by means of photon upscattering, instabilities triggered by internal stresses, and long-living, Sun-like coronal loops which heat the surface. I will review the evolutionary models for magnetised isolated neutron stars, and the connections to the magnetospheric outburst activity.

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