

# Indication of Neutron Star activity in Supernova light curve

*Monday 3 June 2024 17:45 (5 minutes)*

Neutron stars are the compact remnants of massive stars that produce an energetic explosion we observe as a core-collapse supernova. The majority of massive stars are known to have been born in binary or multiple systems. When one of the stars in the system explodes, the orbital parameters can be significantly altered due to sudden mass loss and a natal kick; the binary can survive with a tighter or wider orbit, or it can be disrupted to become two separate stars. In this general picture, the evolution of the remnant system can end up forming a new pulsar or an X-ray, these observations had helped in constraining the evolved Neutron Stars. However, newly born Neutron Stars are very challenging to observe because of the shielding of the ejecta right after the explosion of the Core Collapse. Thus constraints on the early phase of Neutron Star evolution from observations are yet to be set. In this talk, I will discuss how supernova photometry and spectra can shed light on the evolution of the remnant and how they can constrain models for the neutron star early phase magnetosphere.

## **sessioni congresso**

Astrofisica relativistica e particellare

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**Session Classification:** Astrofisica Relativistica e Particellare