

# THE UAB PHYSICS COLLOQUIUM

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## Pulsars: perfect Galactic clocks and the Universe's most extreme magnets

9th October 2019, 12 am Sala d'Actes Ciències

**Speaker:** Dr. Nanda Rea. Institute of Space Sciences (ICE; CSIC-IEEC), Barcelona

Nanda Rea works at the Institute of Space Sciences in Barcelona. Her research focuses on observations and theoretical simulations of neutron stars, the magnetic remnants of the Supernova explosions of relatively massive stars. She is presently studying neutron star population in our Galaxy and leads a collaboration on neutron stars encompassing

**ABSTRACT:** Pulsars are unique laboratories where the most extreme gravity and electromagnetism can be probed, whose emission encompasses electromagnetic waves, cosmic rays, neutrinos, and gravitational waves. Their study transcends the traditional astrophysical approach and requires a multidisciplinary effort: from particle and nuclear physics to astrophysics, from experiment to theory, from gravitational waves to the electromagnetic spectrum.

The talk will deal about pulsars, the most important discoveries in the field, their consequences to physics and what we aim for in the next decade. Particular attention will be given i) to magnetars - the biggest magnets in the Universe ii) to millisecond pulsars - the fastest rotating astrophysical objects, iii) to pulsars as gravitational waves and iv) to pulsars as GPS systems for future deep space travels.



