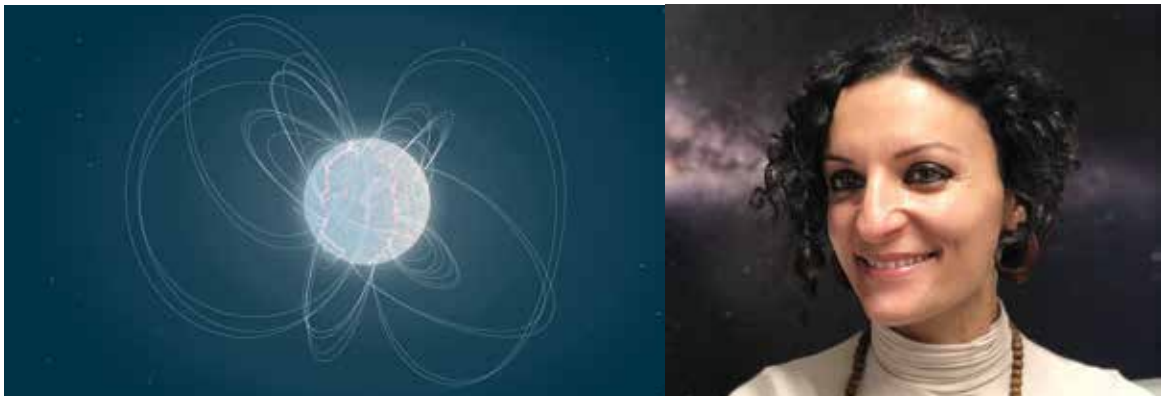
Aarhus University presents

The Ole Rømer Colloquium Series



Wednesday, May 26th @ 15:15 (sharp!)

Dr. Nanda Rea

Institute of Space Sciences (ICE-CSIC, IEEC)
https://www.ice.csic.es/erc-magnesia/
Barcelona, Spain

Pulsars: magnetic monsters at the nuclear density, gravitational wave emitters, and GPS for future deep space travels

Pulsars now turned 50 years! Pulsars turned 3000! These relativistic stars are unique laboratories where not only the most extreme gravity and electromagnetism can be probed, but also the strong and weak interaction can be studied in regimes that have no hope of being explored on Earth. The recent discovery of gravitational waves is allowing an unprecedented view of previously invisible parts of the Universe. This will unravel the physics of the neutron stars (aka pulsars), which are unique objects whose emission encompasses all the available multi-messenger tracers: electromagnetic waves, cosmic rays, neutrinos, and gravitational waves. The study of these objects transcends the traditional astrophysical approach and requires a multidisciplinary effort that spans from particle and nuclear physics to astrophysics, from experiment to theory, from gravitational waves to the electromagnetic spectrum. I will review in this seminar what pulsars are, as well as the most important discoveries in the field, their consequences to physics in general, 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 wave emitters and detectors, and iv) to pulsars as GPS systems for future deep space travels.

Zoom link:
https://aarhusuniversity.zoom.us/j/66297035972

Program:
15:15-16:15: Seminar and Q&A (link opens at 15:00)
16:15-16:45: Special session between students and speaker