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Seminar of the theory group of APC

Mardi 26 Septembre 2017, 14 :00
APC, 483 A - Malevitch
Domaines : hep-th

Titre : *Neutron stars : probing ultra dense (and hot) matter*

Orateur : **Micaela Oertel (LUTH)**

Résumé : *Observed for the first time in 1967 as pulsars, neutron stars represent the most extreme bodies known in nowadays universe. Relict of the gravitational collapse and subsequent supernova explosion of a massive star at the end of its life, they gather a mass of up to twice that of our sun in a sphere with a radius of about 10 km. Their phenomenology is very rich and complex. They are not only very compact, but they are also rotating at frequencies of up to 700 Hz and can have strong magnetic fields of the order* 10^{15} *G. Their modelling requires many different fields of physics such as general relativity, nuclear physics and solid state physics. During this talk, after an introduction, I will discuss some examples of how the confrontation of observational data with neutron star models allows one to probe properties of ultra-dense matter. In the last part of my talk I will present future prospects on how to obtain additional reliable constraints, among others from the observations of binary neutron star mergers with gravitational waves.*