



**Irfu**  
Institut de recherche  
sur les lois fondamentales  
de l'Univers

**Séminaire  
SPP**

**Lundi 19/09/2016, 11h00**

CEA-Saclay Bât. 141, salle André Berthelot

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## **Testing theories of gravity with pulsars and binary systems**

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The direct detection of gravitational waves (GWs) represents the opening of a new window into the universe. The existence of gravitational waves had been known from the observations of binary pulsars, which provide complementary precision tests of theories of gravity. These tests probe aspects like the curvature of space time, gravitational redshift, relativistic spin-orbit coupling, or fundamental principles like the universality of free fall. The timing of an array of millisecond pulsars also offers the opportunity to detect lowfrequency GWs directly. Sources to be detected include binary supermassive black holes, while future observations may also allow to measure the spin of gravitons and to constrain their mass. The talk will review recent observations and will explain how they complement GW observations.

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Le café sera servi 10 minutes avant.

NB : La présentation d'une pièce d'identité est exigée à l'entrée du centre. Tous les auditeurs extérieurs sont priés de prévenir à l'avance Martine Oger, tél. 01 69 08 23 50, e-mail : [martine.oger@cea.fr](mailto:martine.oger@cea.fr). (U.E. : délai de 24 h, hors U.E. : délai de 4 jours).