



SECTION DE PHYSIQUE

COLLOQUE DE PHYSIQUE

24, QUAI ERNEST-ANSERMET, CH-1211 GENÈVE 4

Lundi 25 novembre 2019, 12h30

Ecole de Physique, Auditoire Stueckelberg

**« Neutron stars, black holes and gravitational waves -
exploring gravity with radio astronomy »**

Prof. Michael Kramer

Director, Max Planck Institute for Radioastronomy, Bonn, Germany

Abstract:

The radio sky is a fascinating laboratory for a very wide range of physics. The laws of nature can be probed at a fundamental level, in particular when observing the most extreme matter in the observable universe - neutron stars. When they are visible as radio pulsars, they can act as cosmic clocks that become especially interesting if they have a binary companion. Indeed, binary pulsars provide indispensable laboratories for precision tests of gravity. Effects that can be studied in great detail include the emission of gravitational waves, light-propagation, orbital and spin precession and more. But also fundamental differences between general relativity and alternative theories of gravity can be probed, such as possible violations of the strong equivalence principle, preferred frame effects or the existence of gravitational dipole radiation or scalar fields. Consequently, those results find their application in studies of the equation-of-state of super-dense matter, the nature of dark matter, or the properties of black holes. This talk will try to summarise some of the latest results, including the first image of a black hole and its meaning.

Après le colloque, une collation en compagnie du conférencier sera offerte aux participants.

Prof. Dmitry Abanin

Genève, le 18 novembre 2019/nur

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