

Séminaire LAL

Halloin Hubert (APC, Paris 7)

Mardi 7 février 2017 à 11h00

From LISAPathfinder first results to LISA : observing gravitational waves from space

On the 7th June 2016, the first results of LISAPathfinder have been announced. LISAPathfinder is a technological demonstrator for a space-based gravitational waves observatory as LISA (Laser Interferometer Space Antenna) mission. It is a laboratory in space for testing the key LISA technologies as the free-fall of proof-masses and the high precision interferometry. The residual differential acceleration between the two proof masses of LISAPathfinder is less than $5 \cdot 10^{-15} \text{ m.s}^{-2} \cdot \text{Hz}^{-1/2}$ more than 5 times better than the requirements. This is the green light for LISA mission. This future observatory will observe gravitational wave from space between 0.01mHz and 1Hz, opening a new window on the Universe complementary to LIGO/Virgo and Pulsar Timing Array. The expected sources are supermassive Black Hole Binaries at redshift higher than 13, thousands of Galactic Binaries, Extreme Mass Ratio Inspiral, stochastic backgrounds from the very early Universe or cosmic string network plus all the unexpected sources.

In this talk, I will described the LISAPathfinder mission and its first results. Then I will present LISA mission and its performances based on the LISAPathfinder first results. I will review the scientific goals of LISA in astrophysics, physics and cosmology. Finally, I will conclude on the role of France in this mission.

Salle 101 - Bât. 200, Orsay

Thé et café seront servis 15 mn avant le séminaire

Organisation : Reisaburo Tanaka (LAL) - seminaires@lal.in2p3.fr - <http://www.lal.in2p3.fr>