
Physics Colloquium

“Probing Nature with Gravitational Waves”

**Dr. Nicolas Yunes
Princeton University**

**Friday, February 19, 2010
4:10 – 5:00 PM 108 EPS**

Abstract: Ever since Galileo's improvements on the telescope, every time technology is developed to make a new wavelength accessible to observation, we discover fascinating and sometimes unexpected phenomena. Gravitational wave detectors, such as ground-based (LIGO, VIRGO, GEO, TAMA) or space-based (LISA) interferometers and pulsar timing arrays, are new technologies that hold the promise to reveal invaluable and previously unattainable information, both about astrophysical sources and the nature of gravity. Binary systems composed of compact objects, such as black holes and neutron stars, are difficult to observe electromagnetically, yet they are among the most promising gravitational wave sources, since their waves are relatively simple to model. Compact object binaries also lead to the most energetic, gravitationally strong and dynamical events in Nature, allowing us to explore precisely the regime where we lack experimental and observational tests of General Relativity. In this talk, I will review certain key elements of gravitational wave theory and data analysis, concentrating on compact binary systems and highlighting how they could be used to test General Relativity at new extremes.

Host: Neil Cornish

Dr. Yunes is a candidate for the Gravitational Physics faculty position.

Refreshments
3:45 p.m. EPS - 2nd Floor Atrium