MONTANA STATE UNIVERSITY | College of LETTERS & SCIENCE

Physics Colloquium

Friday, October 27, 2017
4:10 – 5:00 PM

The Dawn of Gravitational Wave Astronomy

Professor Neil Cornish
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http://www.physics.montana.edu/people/faculty/cornish-neil.html
http://www.physics.montana.edu/gravity/index.html
http://www.montana.edu/xgi/
http://www.physics.montana.edu/research/astrophysics/astro-msu.html

Abstract:

A century after Einstein predicted the existence of gravitational waves and fifty years after the first detectors were built, we have finally entered the era of gravitational wave astronomy. Already there have been many surprises and lucky breaks, starting with the first detection of a binary black hole merger by the LIGO-Virgo collaboration days before the official start of the first observing run in September 2015, and capped-off by the discovery of a nearby neutron star collision just days before the end of the second observing run in August 2017. When the Virgo detector in Italy joined the LIGO detectors on August 1st 2017 it was thought it would be a good chance to test our combined analysis pipelines in preparation for the next observing campaign. Instead we soon had the first three detector observation of a black hole merger, allowing new tests of Einstein's theory, followed a few days later by the first neutron star merger. The talk will summarize what we have learned and how the information is extracted, and provide a look-ahead to the next decade of gravitational wave astronomy.

Host: Rufus Cone

**** Refreshments served in the Barnard Alcove opposite Barnard 258 at 3:45 ****