



**UNIVERSITÀ
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**Dipartimento di
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A detailed image of the International Space Station (ISS) in orbit above the Earth's horizon. The station's complex structure, including multiple modules and large solar panel arrays, is clearly visible against the dark background of space and the blue curve of the planet.

PhD Program in Space Science and Technology - SST

The Gravitational Wave Landscape: A Decade of Discovery and a Look Ahead

Specific Seminar – Curriculum 8

November 19, 2026, 1:30 p.m.

Speaker:

Neil Cornish – Regents Professor, Department of Physics - Montana State University

Abstract:

The first decade of gravitational wave astronomy has brought a remarkable series of discoveries.

The first detection of a binary black hole merger in 2015 was followed just two years later by observations of a binary neutron star merger in both gravitational waves and light. In 2023, pulsar timing arrays announced evidence for a gravitational wave background at nanohertz frequencies. Ongoing improvements to ground-based detectors and the planned launch of the space-based LISA observatory in the 2030s promise a wealth of new science.

They also present new challenges: extracting information from increasingly rich data containing many overlapping signals.

I will review some highlights of the first decade and explore the discoveries we hope to make in the decades ahead, along with their implications for our understanding of gravity, cosmology, and astrophysics.

Short Bio

Neil Cornish is Regents Professor of Physics and Director of the eXtreme Gravity Institute at Montana State University. He completed his Ph.D. at the University of Toronto, followed by postdoctoral fellowships in Steven Hawking's group at the University of Cambridge and in David Spergel's group at Princeton University. Neil is a multiwavelength gravitational-wave astronomer, and he is a member of the Laser Interferometer Gravitational-Wave Observatory (LIGO) Scientific Collaboration, the North American Nanohertz Observatory for Gravitational Waves (NANOGrav) Collaboration, and the NASA Laser Interferometer Space Antenna (LISA) Science Study team.

Online attendance:

Information on remote participation can be requested by sending an e-mail to dn_sst@unitn.it