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DEPARTMENT OF PHYSICS

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UNIVERSITY OF RHODE ISLAND QUANTUM INFORMATION

You are invited to join us for a talk as part of our semester colloquium series

Presenter: Maximiliano Isi

Date & Time: Friday February 2, 2024
4:00 - 4:50 PM

Location: East Hall Room 112

Title: Gravitational-waves: From Black Holes to the Cosmos

Abstract:
With the LIGO-Virgo detectors currently undergoing their 4th observing round, gravitational-wave astronomy has matured into a fast-developing field with broad implications for astrophysics, nuclear physics, gravity and cosmology. In this talk, I will focus on recent developments in probing the physics of black holes and their mergers with gravitational waves. This includes measurements of black hole spins and merger kicks, their use as cosmological probes, and the spectroscopic study of ringing black holes. I will outline some of the theoretical and observational questions driving this field: how do black holes form? Are they stable? Can we leverage them as probes of new fundamental fields, dark matter or cosmic expansion? How does the nonlinear nature of gravity manifest in black hole mergers? I will conclude by arguing that we are at the cusp of observationally tackling these and many other fascinating questions as we enter the era of precision gravitational-wave science, with current and future observatories in space and on the ground.

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