Physics Colloquium

Monday, March 19, 2018 / 428 Pupin Hall / 4:15 PM

(reception immediately following)

"Life after Death: Transient Emission from Compact Objects in Galactic Nuclei"

Nicholas Stone, Columbia University

In most regions of the Universe, stellar orbits have enormous mean free paths, and the timescale for a strong two-body encounter exceeds a Hubble time. However, in dense stellar systems, such as open, globular, and nuclear star clusters, close encounters between stars and/or compact objects are frequent, and may lead to the production of transient electromagnetic or gravitational-wave radiation. I will present my research showing how the densest stellar systems in the Universe — galactic nuclei — are dynamical factories that manufacture transient sources such as X-ray binaries, tidal disruption events, and LIGO-band black hole mergers. I will discuss my past and ongoing work to understand the transient electromagnetic and gravitational radiation from these dynamically assembled systems, focusing especially on ways in which time domain astronomy can probe general relativity.

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