**PRINCETON ACM / IEEE-CS CHAPTERS**
**NOVEMBER 2018 JOINT MEETING**

# Simulating Neutron Star Collisions

This talk will provide insight into the modeling and simulation of extreme celestial events, such as the collision between two neutron stars.

In September 2015 Laser Interferometer Gravitational wave Observatories (LIGO) in Hanford (WA) and Livingston (LA) detected, for the first time, gravitational waves from two colliding black holes. Four other black hole collisions have been observed since then. Last year, in Aug. 2017, Adv. LIGO, in partnership with the European detector Virgo, observed for the first time the collision between two neutron stars. The gravitational wave signal was accompanied by the emission of intense radiation throughout the entire electromagnetic spectrum, from the radio to the gamma-ray. The amount and quality of the data obtained for this event are unprecedented for astronomical transients. This data, as well as the data from future detections, could allow us to address pressing open questions in gravitational physics and high-energy astrophysics. However, the interpretation of the combined radio, infrared, optical, UV, X-ray, and gravitational wave data requires sophisticated supercomputer simulations. In this talk we will discuss the importance of the simulations in gravitational wave astronomy, some of the key techniques employed by the simulation, recent results, and open challenges.

**Kenta Hotokezaka** received a PhD in physics from the Department of Physics at Kyoto University (Japan). He is currently a Lyman Spitzer Jr. fellow in the Department of Astrophysical Sciences at Princeton University.

**David Radice** received a PhD in gravitational wave astronomy from the Max Planck Institute for Gravitational Physics in Potsdam (Germany). He is currently an associate research scholar in the Department for Astrophysical Sciences at Princeton University and a Member of the School of Natural Sciences at the Institute for Advanced Study in Princeton.

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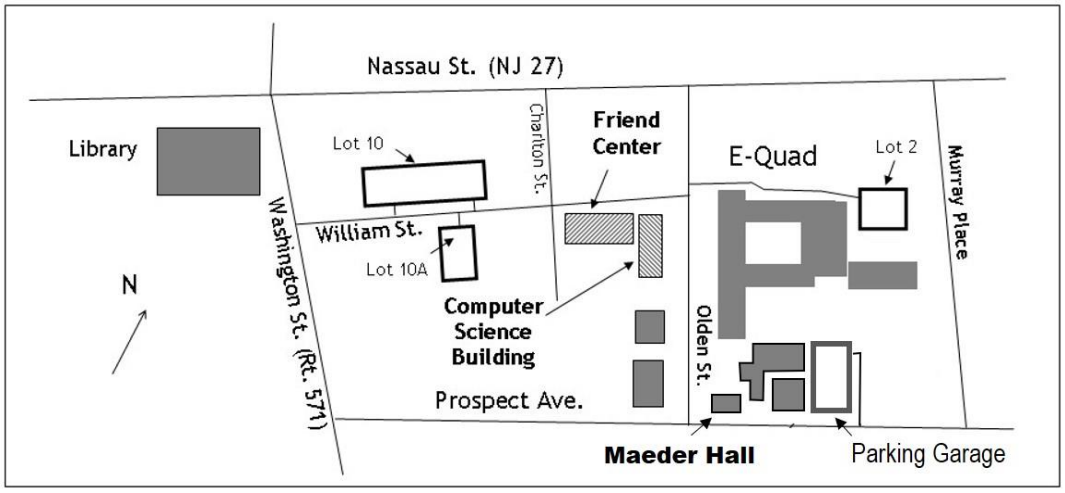
| Date: | Thursday, November 15, 2018, 8:00 pm.<br>(Refreshments and networking at 7:30 pm.) |
| Place: | Small Auditorium, Room CS 105<br>Computer Science Building, Princeton University |
| Information: | Dennis Mancl (908) 285-1066 |
| On-line info: | **http://PrincetonACM.acm.org** |

All Princeton ACM / IEEE-CS meetings are open to the public. Students and their parents are welcome. There is no admission charge, and refreshments are served.

A pre-meeting dinner is held at 6:00 p.m. at Ruby Tuesday's Restaurant on Route 1. Please send email to **princetonacm@acm.org** in advance if you plan to attend the dinner.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