

NRAO/Socorro Colloquium Series

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**Follow the chirp:
seeing and listening to the transient Universe**

Abstract:

The mergers of binary compact objects (black holes, neutron stars, white dwarfs) are amongst some of the most violent events in the Universe. The physics driving these events in strongly curved space times are extremely complex, rich but still remain elusive. These cosmic laboratories present us now with both a challenge and an opportunity. The challenge is to explain the physics at play in strong-field gravity in Universe. The opportunity is to detect the accompanying electromagnetic and gravitational radiation jointly for the first time with a suite of time-domain telescopes and newly upgraded gravitational wave (GW) detectors. In this pivotal new era of strong-field gravity astronomy, the most compelling astrophysical sources are neutron star binary mergers, which should emit both in electromagnetic (EM) and GWs. I will first review the most recent advances in this blossoming field of EM + GW astronomy, which combines two active disciplines: time-domain astronomy and general relativity. I will discuss the promises of this new convergence by illustrating the wealth of astrophysical information that a combined EM+GW measurement would immediately bring. I will then outline the main challenges that lie ahead for this new field in pinpointing the sky location of and characterising neutron star mergers using GW detectors and optical and radio wide-field synoptic surveys.

April 17, 2015

11:00 am

Array Operations Center Auditorium

All NRAO employees are invited to attend via video, available in Charlottesville Auditorium, Green Bank Auditorium, and VLA Video Conference Room.

Local Host: D.A. Frail
