Radio observations of the most relativistic cosmic bangs: from outflows to remnants

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The deaths of massive stars seed our universe with black holes and neutron stars - the most exotic objects of the stellar graveyard. The births of these stellar remnants, as well as their mergers when paired in binaries, power explosions that can launch the most relativistic jets we know of in the universe (gamma-ray bursts) and shake the very fabric of space-time via ripples called gravitational waves. In this talk I will discuss how radio light, and gravitational waves, can be used in tandem to unveil the multi-messenger physics of relativistic cosmic transients. I will also highlight opportunities and challenges that lie in front of us, as improvements in detectors' sensitivities will likely transform a trickle of multi-messenger discoveries into a flood.

Short Bio

Alessandra Corsi is an Associate Professor in the Department of Physics and Astronomy at Texas Tech University (TTU). Her research focuses on multi-messenger time-domain astronomy, with emphasis on relativistic radio transients and gravitational wave physics, funded by the National Science Foundation from which she also received a CAREER award. She was one of the key players in the discovery of the radio afterglow from GW170817, the first LIGO binary neutron star merger. In 2017, she had the opportunity to report on this discovery at the NSF press conference hosted at the National Press Club. She is PI of several guest investigator programs funded by NASA.
Alessandra Corsi is a Fellow of the American Physical Society, a recipient of the Edith and Peter O'Donnell Award in Science of The Academy of Medicine, Engineering and Science of Texas (TAMEST), and an Italian National L'Oreal-Unesco Awardee for Women in Science. She is also a Fellow of the Research Corporation for Science Advancement (Scialog) in Time Domain Astrophysics. In 2020, she was selected as one of the ``SN 10: Scientists to Watch'' by Science News. She will be among the recipients of one of the 2022 New Horizons in Physics Breakthrough Prizes.
Alessandra Corsi is a member of the LIGO Scientific Collaboration. At TTU, she teaches a variety of courses, from large introductory astronomy courses for non-science majors, to upper-level and graduate Astrophysics and Physics courses.