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Multi-Messenger Exploration of the Transient Radio Sky with LIGO

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Abstract: On 2017 August 17, the field of gravitational-wave (GW) astronomy made the big leagues with a dazzling discovery. After several GW detections of black hole (BH)-BH mergers with no convincing electromagnetic counterparts, advanced LIGO and Virgo scored their first direct detection of GWs from a binary neutron star (NS) merger, an event dubbed GW170817. This event also gifted the astronomical community with an electromagnetic counterpart spanning all bands of the spectrum, motivating the continued hunt for electromagnetic counterparts of GWs during the third observing run of LIGO and Virgo. In this talk, I will review what we have learned from GW170817 focusing on its radio counterpart, highlight some of the key outcomes of the third (and most recent) LIGO/Virgo observing run, and conclude by discussing open questions and future prospects in the multi-messenger study of the transient radio sky.



Biography: Alessandra Corsi is Associate Professor in the Department of Physics and Astronomy at Texas Tech University (TTU). Her research focuses on time-domain astronomy, with emphasis on relativistic transients and gravitational wave physics. She received her Laurea in Physics in 2003 and her Ph.D. in Astronomy in 2007 from the University of Rome Sapienza. She carried out post-doctoral research at various institutions including the Pennsylvania State University and the California Institute of Technology. In 2015 she received an NSF CAREER award titled “CAREER: Radio and gravitational-wave emission from the largest explosions since the Big Bang”. She is a fellow of the Research Corporation for Science Advancement (Scialog), and a l’Oreal-UNESCO National (Italy) awardee “For Women in Science”. As part of the LIGO Scientific Collaboration she is a recipient of the Special Breakthrough Prize in Fundamental Physics, the Gruber Cosmology Prize, and the AAS Bruno Rossi Prize. In 2019 she was elected Fellow of the American Physical Society “For major contributions to the discovery of both gravitational wave sources and their electromagnetic counterparts”. In 2020 she was awarded the TAMEST O’Donnell award for Science, and she received a TTU President’s Excellence in Research Professorship.