SHARAN BANAGIRI

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Education

- **Ph.D in Physics** *(Fall 2014 – Present)*
  University of Minnesota, Twin Cities
  Advisor: Prof. Vuk Mandic, Ph.D
  Research Topic: Detection and analysis of stochastic gravitational-wave backgrounds and gravitational-wave transients with ground based and space-borne detectors

- **B.Tech in Mechanical Engineering with a minor in Physics** *(2009 – 2013)*
  Indian Institute of Technology, Hyderabad

Research Interest

Gravitational-wave physics, astrophysics & cosmology with gravitational waves. Data analysis, Bayesian Analysis & Statistical applications in physics and astrophysics.

Research Experience

- Search for long duration unmodeled gravitational-wave transients *(2016 - 2018)*
- Search for long duration signals from binary neutron star post-merger remnants *(2017 - 2019)*
- Parameter estimation methods for long duration transients and post-merger remnants *(2018 - Present)*
- Bayesian methods to detect anisotropic stochastic gravitational-wave backgrounds with LISA *(2017 - Present)*
- Methods to measure anisotropies of sub-threshold binary black-hole progenitors distributions *(2018 - Present)*
- Methods to use gravitational-wave events to as a probe of large scale structure *(2019 - Present)*

Publications

- S. Banagiri, V. Mandic et al., Measuring two-point angular correlations of binary black-hole ensemble through hierarchical Bayesian Inference, *(Paper in Prep)*
- S. Banagiri, M. W. Coughlin et al., Constraining the Gravitational-Wave Afterglow From a Binary Neutron Star Coalescence, *MNRAS. 492, 4 (2020)*

- S. Banagiri, L Sun et al., Search strategies for long gravitational-wave transients: hidden Markov model tracking and seedless clustering, *Phys. Rev.D. 100,024034 (2019)*
- *Abbott et al., Search for gravitational waves from a long-lived remnant of the binary neutron star merger GW170817, *ApJ. 875,2 (2019)*
- Fitz Axen, Banagiri et al., Multi-wavelength observations of cosmological phase transitions using LISA and Cosmic Explorer, *Phys. Rev.D. 98,103508 (2018)*

* Papers by the LIGO-Virgo collaboration to which I was a major contributor. I am also an author on several papers by the LIGO and Virgo Collaboration.
Few other papers on which I am an author are also not listed here.

Scientific Talks

- Texas Symposium on Relativistic Astrophysics, University of Portsmouth, Dec. 2019, Measuring angular correlations in the ensemble of binary black-hole mergers using hierarchical Bayesian inference
- Cosmology Seminar, School of Physics and Astronomy-UMN, 2019, Measuring anisotropies of sub-threshold binary black-hole mergers with hierarchical Bayesian inference
- IGC@25: Multi-messenger Universe, Penn State, June 2019, Gravitational-wave searches for post-merger remnants following GW170817
- Cosmology Seminar, School of Physics and Astronomy-UMN, 2018, Gravitational wave searches for post-merger remnants from GW1708017
- Midwest Relativity Conference, 2018, LVC searches for long-lived post-merger remnants following GW1708017
- LIGO-VIRGO Collaboration Meeting, Sept. 2018, Bayesian parameter estimation of neutron star post-merger signals
- LIGO-VIRGO Collaboration Meeting, Sept. 2018, Gravitational-wave searches for long-lived post-merger remnants from GW1708017
- LIGO-VIRGO Collaboration Meeting, March 2018, STAMP search for long transient Post-Merger signals from GW170817

Teaching

- Physics Teaching Assistant : I was a TA for introductory and lower level undergraduate physics course *(2014 - 2018)*

awards

- Hoff Lu Fellowship, University of Minnesota *(2018)*
- Doctoral Dissertation Fellowship, University of Minnesota *(2019-2020)*

Programming & Computational Skills

Python, MATLAB, Mathematica, LaTeX, Bash, HTcondor, AutoCAD, Linux, Git, SVN, Vim, Emacs

Professional Membership

LIGO Scientific Collaboration, American Physical Society, LISA Consortium