

SHARAN BANAGIRI

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CITIZENSHIP	India
EDUCATION	<i>Ph.D</i> , Physics <i>2014 - Present</i> University of Minnesota <i>B.Tech</i> , Mechanical Engineering <i>2009 - 2013</i> Indian Institute of Technology, Hyderabad
RESEARCH INTEREST	Astrophysics and cosmology with gravitational waves. Application of Bayesian and statistical methods to astrophysical data.
RESEARCH EXPERIENCE	<ul style="list-style-type: none">• Unmodeled searches for long duration gravitational-wave transients.• Methods for detection and parameter estimation of binary neutron star post-merger remnants.• Methods to use gravitational-wave events as probes of large scale structure and anisotropies of matter distribution in the Universe.• Development of Bayesian methods to detect anisotropies in the millihertz stochastic gravitational-wave backgrounds with LISA
PROFESSIONAL EXPERIENCE	<i>Graduate Researcher, 2016 through Present</i> <i>Advisor:</i> Prof. Vuk Mandic, PhD, Professor of Physics; University of Minnesota
TECHNICAL SKILLS	Python, MATLAB, Mathematica, Bash, C/C++, HTCondor, L ^A T _E X, Git, Linux, vim, emacs
SERVICE	<ul style="list-style-type: none">• ApJ referee• LVC internal Burst and CW group reviewer.• School of physics and astronomy colloquium committee member, <i>2016-2017</i>
AWARDS	<ul style="list-style-type: none">• Hoff Lu Fellowship, University of Minnesota, <i>2018</i>• Doctoral Dissertation Fellowship, University of Minnesota, <i>2019 - 2020</i>• Aneesur Rahman Award, University of Minnesota, <i>2020</i>
TEACHING	<i>Physics Teaching Assistant</i> : Teaching assistant for introductory and lower level undergraduate physics course (2014 - 2018)
PROFESSIONAL MEMBERSHIP	LIGO Scientific Collaboration, American Physical Society, LISA Consortium

TALKS

(selected)

- *September 2020: LISA Symposium*, A Bayesian analysis for the anisotropies in the stochastic gravitational wave background with LISA
- *December 2019: Texas Symposium on Relativistic Astrophysics, Portsmouth UK*
Measuring angular correlations in the ensemble of binary black-hole mergers
- *October 2019: Cosmology Seminar, University of Minnesota*
Measuring anisotropies of sub-threshold binary black-hole mergers
- *June 2019: IGC@25: Multi-messenger Universe, Penn State*
Gravitational-wave searches for post-merger remnants following GW170817
- *2018: Cosmology Seminar, University of Minnesota*
Gravitational-wave searches for post-merger remnants of GW170817
- *October 2018: Midwest Relativity Conference, WI*
LVC searches for long-lived post-merger remnant of GW1708017
- *September 2018: LVC Meeting*
Bayesian parameter estimation of binary neutron star post-merger signals
- *September 2018: LVC Meeting*
Gravitational-wave searches for long-lived post-merger remnants from GW1708017
- *March 2018: LVC Meeting*
STAMP search for long transient Post-Merger signals from GW170817

PUBLICATIONS

I am an author or a coauthor on 78 papers in total. As a member of the LIGO scientific collaboration, I have been a coauthor on on all LVC papers since 2017. Highlighted below are the papers which I made significant contributions to.

1. S. Banagiri, A. Criswell, T. Kuan, V. Mandic, J. D. Romano and S. R. Taylor, Mapping the Gravitational-wave Sky with LISA: A Bayesian Spherical Harmonic Approach, Paper in preparation (an early draft can be found at [this link](#)).
2. K. Z. Yang, V. Mandic, C. Scarlata and S. Banagiri, Searching for Cross-Correlation Between Stochastic Gravitational Wave Background and Galaxy Number Counts, arXiv:2007.10456.
3. E. Payne, S. Banagiri, P. Lasky and E. Thrane, Searching for anisotropy in the distribution of binary black hole mergers, arXiv:2006.11957.
4. S. Banagiri, V. Mandic, C. Scarlata and K. Z. Yang, Measuring angular N-point correlations of binary black-hole merger gravitational-wave events with hierarchical Bayesian inference, Phys. Rev. D **102**, no.6, 063007 (2020)
5. S. Banagiri, M. W. Coughlin, J. Clark, P. D. Lasky, M. A. Bizouard, C. Talbot, E. Thrane and V. Mandic, Constraining the Gravitational-Wave Afterglow From a Binary Neutron Star Coalescence, Mon. Not. Roy. Astron. Soc. **492**, no.4, 4945-4951 (2020)
6. S. Banagiri, L. Sun, M. W. Coughlin and A. Melatos, Search strategies for long gravitational-wave transients: hidden Markov model tracking and seedless clustering, Phys. Rev. D **100**, no.2, 024034 (2019)
7. B. P. Abbott *et al.*, Search for gravitational waves from a long-lived remnant of the binary neutron star merger GW170817, Astrophys. J. **875**, no.2, 160 (2019)
8. M. Fitz Axen, S. Banagiri, A. Matas, C. Caprini and V. Mandic, Multiwavelength observations of cosmological phase transitions using LISA and Cosmic Explorer, Phys. Rev. D **98**, no.10, 103508 (2018)