Shamibrata Chatterjee

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Research Interests

- Nanohertz Gravitational Waves and Pulsar Timing Arrays.
- The Radio Transient Sky; Fast Radio Bursts; Compact Objects: Neutron Stars.
- Precision Astrometry: Neutron Star Proper Motions and Parallaxes.

Education

2003 Ph.D. (Astronomy), Cornell University.
2000 M.S. (Astronomy), Cornell University.
1996 B.Tech. (Electrical Engineering), Indian Institute of Technology, Madras.

Professional Experience

2025 – Associate Professor
Department of Astronomy, Cornell University, Ithaca, NY.
2022 – 2025 Research Professor
2020 – 2025 Principal Research Scientist
Cornell Center for Astrophysics and Planetary Science, Ithaca, NY.
2015 – 2020 Senior Research Associate
2009 – 2014 Research Associate
Department of Astronomy and CRSR, Cornell University, Ithaca, NY.
2008 – 2009 Research Scientist *and* Queen Elizabeth II Fellow
CSIRO Australia Telescope National Facility.
2006 – 2008 University Research Fellow
School of Physics, The University of Sydney, Australia.
2003 – 2006 Jansky Fellow
Harvard-Smithsonian Center for Astrophysics, Cambridge, MA *and*
National Radio Astronomy Observatory, Socorro, NM.
1999 – 2003 Graduate Research Assistant
Department of Astronomy, Cornell University, Ithaca, NY.

Selected Honors and Awards

2020 Breakthrough Prize in Fundamental Physics,
Event Horizon Telescope Collaboration (shared, 347 members).

2002 Cranson W. and Edna B. Shelley Award for Graduate Research in Astronomy,
Department of Astronomy, Cornell University.

2001 Eleanor Norton York Prize in Astronomy,
Department of Astronomy, Cornell University.

1996 Dr. Shankar Dayal Sharma, President of India Prize
for All Round Proficiency in Curricular and Extracurricular Activities.

1996 Indian Institute of Technology Certificate of Merit
for Excellence in Cultural Activities and Organizational Abilities.

1996 Motorola Prize (Certificate of Academic Distinction),
Indian Institute of Technology, Madras.

Selected Professional Activities

- Chair, NANOGrav Collaboration Pulsar Search Working Group, 2019 – ongoing.
- Co-Chair, NANOGrav Collaboration Noise Budget Working Group, 2015 – 2019.
- Co-Chair, VLA Sky Survey Science Group, 2015 – 2022.
- Founder and co-editor, *Fast Radio Bursts Community Newsletter*, 2019 – ongoing.
- Scientific Advisory Council, Next-Generation Very Large Array, 2016 – 2021.
- Meeting organizing committee, *Fast Radio Bursts 2021*.
- NRAO Users Committee, 2013 – 2017; 2025 – ongoing.
- NASA peer review: *Swift* cycle 12; *Fermi* cycle 8; *Chandra* cycles 6, 14; LISA cycle 1.
- NSF external review, NRAO-ALMA Program Plan Review, 2012.
- Science Council, Murchison Widefield Array project, 2008 – 2009.
- Proposal review: NRAO VLA, VLBA, GBT, 2006 – 2008; Arecibo Observatory, 2018 – 2020.
- Peer review for *Nature*, *Science*, *ApJ*, *ApJL*, *MNRAS*, *A&A*; ongoing.

Selected Funded Grant Proposals

- PI, "Advancing Analysis of the Breakthrough Listen Technosignature Search at the GBT"
  2024, University of Oxford, $46,360.
- Senior Personnel, "The North American Nanohertz Observatory for Gravitational Waves"
  2021, NSF Physics Frontiers Center *and* NSF Mid-Scale Innovations Program, $17M.
  2014, NSF Physics Frontiers Center *and* NSF Mid-Scale Innovations Program, $16M.
- Co-I, "Interstellar Turbulence Near the Heliospheric Boundary"
  2019, NASA Outer Heliosphere Guest Investigator Program, $363,000.
- PI, "Radio Bursts and Gravity from Parsecs to Gigaparsecs"
  2017, NSF Astronomy and Astrophysics Research, $586,000.
- PI, "Solving the Enigma of Fast Radio Burst 121102"
  2017, *Hubble Space Telescope* General Observer Program, $22,000.
- PI, "A NANOGrav Study of Gravitational Wave Astronomy with the ngVLA"
  2016, National Radio Astronomy Observatory, $25,000.
- PI, "Coordinated X-Ray and Radio Observations of the Repeating Fast Radio Burst 121102"
  2016, *Chandra* General Observer Program subaward, $12,000.
- PI, "Collaborative Research: Booming or Beaming? Sorting out the Dynamic Radio Universe"
  2009, NSF Astronomy and Astrophysics Research, $269,000.
- PI, "Snap, Crackle, Pop: Opening the Window on the Variable Radio Universe"
  2008, Australian Research Council Discovery Project, AU$ 876,000.

Teaching Experience

2025 –	Astronomy 1102, "Our Solar System" (co-taught); Cornell University.
2020 –	Microbiology 1200, "Genesis" (co-taught); Cornell University.
2022	Astronomy 7620, "ISM, Multimessenger Astronomy" (co-taught); Cornell University.
2018, 2019	Astronomy 1199, "Are We Alone? Search for Life in the Universe"; Cornell University.
2017, 2018	Astronomy 2201, "History of the Universe"; Cornell University.
2014 – 2018	Astronomy 2299, "Search for Life in the Universe" (co-taught); Cornell University.
2008	Physics 1500, "Introduction to Astronomy"; The University of Sydney.
2006 – 2007	Physics 1001 and 1003, "Physics 1"; The University of Sydney.

Shamibrata Chatterjee: Selected High-Impact Publications

Current H-Index: 91
(At least 91 refereed publications with 91 or more citations through March 2025.)

1. The NANOGrav collaboration, "The NANOGrav 15 yr Data Set: Evidence for a Gravitational-wave Background", *ApJL*, **951**, L8, 2023 ⇒ *1081 citations.*
2. Niu, C.-H., Aggarwal, K., Li, D., Zhang, X., **Chatterjee, S.**, Tsai, C. -W., et al. (35 authors), "A repeating fast radio burst in a dense environment with a compact persistent radio source", *Nature*, **606**, 873, 2022 ⇒ *235 citations.*
3. Li, D., Wang, P., Zhu, W. W., Zhang, B., Zhang, X. X., Duan, R., Zhang, Y. K., Feng, Y., Tang, N. Y., **Chatterjee, S.**, Cordes, J. M., et al. (31 authors), "A bimodal burst energy distribution of a repeating fast radio burst source", *Nature*, **598**, 267, 2021 ⇒ *212 citations.*
4. * Ocker, S. K., Cordes, J. M., **Chatterjee, S.**, Gurnett, D. A., Kurth, W. S., Spangler, S. R., "Persistent plasma waves in interstellar space detected by Voyager 1", *Nature Astronomy*, **5**, 761, 2021.
5. Lacy, M., Baum, S. A., Chandler, C. J., **Chatterjee, S.**, et al., "The Karl G. Jansky Very Large Array Sky Survey (VLASS). Science Case and Survey Design", *PASP*, **132**, 035001, 2020 ⇒ *557 citations.*
6. Cordes, J. M. and **Chatterjee, S.**, "Fast Radio Bursts: An Extragalactic Enigma", *Annual Review of Astronomy and Astrophysics*, **57**, 417, 2019 ⇒ *Invited review of the field; 453 cites.*
7. Michilli, D., Seymour, A., Hessels, J. W. T., Spitler, L. G., Gajjar, V., Archibald, A. M., Bower, G. C., **Chatterjee, S.**, Cordes, J. M., et al. (34 authors), "An Extreme Magneto-Ionic Environment Associated with the Fast Radio Burst Source FRB 121102", *Nature*, **553**, 182, 2018. ⇒ *432 cites.*
8. Tendulkar, S. P., Bassa, C. G., Cordes, J. M., Bower, G. C., Law, C. J., **Chatterjee, S.**, et al. (24 authors), "The Host Galaxy and Redshift of the Repeating Fast Radio Burst FRB 121102", *ApJL*, **834**, L7, 2017. ⇒ *The first FRB host galaxy redshift; 615 cites.*
9. **Chatterjee, S.**, Law, C. J., Wharton, R. S., et al. (25 authors), "A Direct Localization of a Fast Radio Burst and its Host", *Nature*, **541**, 58, 2017. ⇒ *The first FRB localization; 732 cites.*
10. Spitler, L. G., Scholz, P., Hessels, J. W. T., Bogdanov, S., Brazier, A., Camilo, F., **Chatterjee, S.**, Cordes, J. M., et al. (24 authors), "A Repeating Fast Radio Burst", *Nature*, **531**, 202, 2016.
    ⇒ *The first repeating FRB; 783 cites.*
11. Ransom, S. M. et al. (21 authors, including **Chatterjee, S.**), "A Millisecond Pulsar in a Stellar Triple System" *Nature*, **505**, 520, 2014. ⇒ *A NS–WD–WD testbed for general relativity; 227 cites.*
12. **Chatterjee, S.**, Brisken, W. F., Vlemmings, W. H. T., Goss, W. M., Lazio, T. J. W., Cordes, J. M., Thorsett, S. E., Fomalont, E. B., Lyne, A. G., & Kramer, M., "Precision Astrometry with the VLBA: Parallaxes and Proper Motions for 14 Pulsars", *ApJ*, **698**, 250–265, 2009
    ⇒ *Results from a large astrometry program with the Very Long Baseline Array; 162 cites.*
13. Gaensler, B. M., Madsen, G. J., **Chatterjee, S.**, & Mao, S. A.,
    "The Vertical Structure of Warm Ionised Gas in the Milky Way", *PASA*, **25**, 184, 2008.
    ⇒ *Exploiting new parallaxes to estimate the Galactic scale height; 295 cites.*
14. **Chatterjee, S.**, Vlemmings, W. H. T., Brisken, W. F., Lazio, T. J. W., Cordes, J. M., et al.,
    "Getting its Kicks: A VLBA Parallax for the Hyperfast Pulsar B1508+55", *ApJL*, **630**, L61, 2005.
    ⇒ *A neutron star velocity in excess of 1000 km/sec challenges theoretical models; 149 cites.*

(*: Graduate student-led paper.)