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

2022 –	Research Professor, Department of Astronomy
2020 –	Principal Research Scientist
2015 – 2020	Senior Research Associate Cornell Center for Astrophysics and Planetary Science.
2009 – 2014	Research Associate Department of Astronomy and CRSR, Cornell University.
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—
- 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—
- Scientific Advisory Council, Next-Generation Very Large Array, 2016 – 2021.
- Meeting organizing committee, *Fast Radio Bursts 2021*.
- NRAO Users Committee, 2013 – 2017.
- 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.
- Guest Editor, "Young Neutron Stars and Supernova Remnants", Advances in Space Research, 2005.
- Peer review for *Nature*, *ApJ*, *ApJL*, *MNRAS*, *A&A*; ongoing.

Selected Funded Grant Proposals

- 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

2022	Astronomy 7620, "ISM, Multimessenger Astronomy" (co-taught); Cornell University.
2020 – 2023	Microbiology 1200, "Genesis" (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: 81
(At least 81 refereed publications with 81 or more citations through March 2024.)

1. The NANOGrav collaboration, "The NANOGrav 15 yr Data Set: Evidence for a Gravitational-wave Background", *ApJL*, **951**, L8, 2023 ⇒ *544 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 ⇒ *150 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 ⇒ *153 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. 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; 375 cites.*

6. 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. ⇒ *373 cites.*

7. 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; 547 cites.*

8. **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; 653 cites.*

9. 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.
⇒ *At least some FRBs repeat; 716 cites.*

10. 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; 207 cites.*

11. **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; 151 cites.*

12. Champion, D. J. et al. (31 authors, including **Chatterjee, S.**), "An Eccentric Binary Millisecond Pulsar in the Galactic Plane", *Science*, **320**, 1309, 2008.
⇒ *An unusual system discovered by the PALFA survey at Arecibo; 170 cites.*

13. **Chatterjee, S.**, Vlemmings, W. H. T., Brisken, W. F., Lazio, T. J. W., Cordes, J. M., Goss, W. M., Thorsett, S. E., Fomalont, E. B., Lyne, A. G., & Kramer, M., "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; 142 cites.*