

Scott M. Ransom

Work:

National Radio Astronomy Observatory
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Experience

National Radio Astronomy Observatory (NRAO), Astronomer with Tenure, 2010–present
(Asst. Astronomer, 2004–2006; Assoc. Astronomer, 2006–2009, tenured in 2009)
University of Virginia, Visiting Research Professor of Astronomy, 2005–present
Fellow, Gravity & the Extreme Universe, Canadian Institute for Advanced Research, 2017–present
Chair of NANOGrav Collaboration, 2019–2022
McGill University Tomlinson Post-Doctoral Fellow, 2001–2004
U.S. Army, Research Officer (Los Alamos NL 1991, 1992), Field Artillery Officer & Instructor, 1992–1999

Teaching

Univ. of Virginia, Astro 534: Graduate Radio Astronomy (co-taught 8 times)

Education

Harvard University, Cambridge, MA: AM, Astronomy, 1994; PhD, Astronomy, 2001
Thesis: “New Search Techniques for Binary Pulsars”, Advisor: G. G. Fazio
Unites States Military Academy, West Point, NY: BS, Engineering Physics, 1992

Selected Honors

American Astronomical Society HEAD Bruno Rossi Prize (NANOGrav), 2025
American Astronomical Society Lancelot M. Berkeley Prize (CHIME/FRB Team), 2022
Fellow of the American Physical Society (Astrophysics), 2015
Visiting Miller Professor, Miller Institute, UC Berkeley, Spring 2015
Visiting Fellow, All Souls College, Oxford University, Fall 2014
American Astronomical Society Helen B. Warner Prize, 2010
Hertz Foundation Graduate Fellowship, 1992–1994

Research Interests

I study neutron stars and pulsars. In particular, I search for and monitor unusual pulsars, using advanced algorithms and instruments, and data from telescopes at energies from radio waves to gamma-rays. I focus on exotic neutron stars, which can be used for various physics tests, such as millisecond and/or binary systems, pulsars in globular clusters and supernova remnants, and magnetars. I am a founder of the NANOGrav collaboration and have developed key pulsar instrumentation, algorithms, and software, such as PRESTO, a suite of programs that has found the majority of all known binary and millisecond pulsars.

Selected Professional Committees / Service

IAU Standards of Fundamental Astronomy (SOFA) board member, 2013–present
NAS Committee on Astronomy and Astrophysics (CAA), 2018–2024
US Astronomy Decadal Survey 2020 Panel on Compact Objects and Energetic Phenomena, 2019–2021
NAS Committee on Radio Frequencies (CORF), 2016–2019
US Astronomy Decadal Survey 2010 Stars and Stellar Evolution Science Frontiers Panel, 2009

Graduate Students Supervised

Past: **Ryan Lynch**, UVA PhD, 2011 (NRAO scientist); **Anya Bilous**, UVA PhD, 2012 (U. Amsterdam scientist); **Tim Pennucci**, UVA PhD, 2015 (finance); **Siraprapa Sanpa-Arsa**, UVA PhD, 2016 (Chiang Mai Univ. faculty); **Brian Prager**, UVA PhD, 2017 (industry data scientist); **Thankful Cromartie**, UVA PhD, 2020 (NRC Fellow, NRL); **Kyle Corcoran**, UVA PhD, 2024 (Computational Physics, Inc.)

Current: **Amaris McCarver** (UVA 1st yr), **Anika Deutsch** (UVA 1st yr), **Reynier Squillace** (UVA 2nd yr), **Olivia Young** (RIT 5th yr), **Deven Bhakta** (UVA 5th yr)

Selected Recent Awarded Funding

2021-2024: Gordon & Betty Moore Foundation, “NANOGrav Large Observing Program on the GBT”, **\$2.3M**, PI S. Ransom

2020-2025: NSF PFC Award 2020265, “NANOGrav Physics Frontier Center”, ~\$17M over 5 years. NRAO portion ~**\$945K, with an additional \$300K/year for GBT time**, PI X. Siemens

2018-2022: Gordon & Betty Moore Foundation, “Ultra-wideband Receiver for GBO and NANOGrav”, **\$870K+\$370K**, PI S. Ransom

2015-2019: NSF PFC Award 1430284, “NANOGrav Physics Frontier Center”, \$14.5M over 5 years. NRAO portion **\$748K, with an additional \$500K/year for GBT time**, PI X. Siemens

Selected Recent and High-Impact Publications

393 refereed publications as of April 6, 2025. H-index of 103.

Agazie, G., et al. 2023, “The NANOGrav 15 yr Data Set: Evidence for a Gravitational-wave Background”, ApJ, 951, L8

Cromartie, H. T., Fonseca, E., **Ransom, S. M.**, et al. 2020, “Relativistic Shapiro delay measurements of an extremely massive millisecond pulsar”, Nature Astronomy, 4, 72

Chatterjee, S., et al. 2017, “A direct localization of a fast radio burst and its host”, Nature, 541, 58

Spitler, L. G., et al. 2016, “A repeating fast radio burst”, Nature, 531, 202

Ransom, S. M., et al. 2014, “A millisecond pulsar in a stellar triple system”, Nature 505, 520

Demorest, P. B., Pennucci, T., **Ransom, S. M.**, Roberts, M. S. E., & Hessels, J. W. T. 2010, “A two-solar-mass neutron star measured using Shapiro delay”, Nature, 467, 1081

Miscellaneous

Supervised seven postdoctoral fellows: Paul Demorest (2010-2011), Glenn Jones (2012-2013), Jintao Luo (2012-2015), Kevin Stovall (2016-2018), Tim Pennucci (2019-2021), Tasha Gautam (2023), & Alex Saffer (2024+)

Member of **CHIME/FRB** Team and NASA’s *NICER* Science Team

Open source pulsar software (e.g. PRESTO) available at <http://github.com/scottransom>

Graduate level radio astronomy textbook was published April 2016 by Princeton University Press: [J. J. Condon & S. M. Ransom, “Essential Radio Astronomy”](#). A free online version will continue to exist here: <https://science.nrao.edu/opportunities/courses/era/>.