Andrew J. Baker

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Appointments

2024 –	Distinguished professor
2017 – 2024	Professor
2012 – 2017	Associate professor
2006 – 2012	Assistant professor Department of Physics and Astronomy, Rutgers University
2022 –	Extraordinary professor Department of Physics and Astronomy, University of the Western Cape
2016 – 2017	Member, Defense Science Study Group
2009	Visiting scientist Joint ALMA Observatory, Santiago/San Pedro de Atacama
2004 – 2006	Jansky Fellow (National Radio Astronomy Observatory) Department of Astronomy, University of Maryland
2000 – 2004	Postdoctoral researcher (infrared/submillimeter astronomy group) Max-Planck-Institut für extraterrestrische Physik

Education

1994 – 2000	Ph.D. in Astronomy, California Institute of Technology
1990 – 1994	A.B. *cum laude* in Mathematics and Physics, Harvard University

Honors

2024	Fellowship, American Astronomical Society
2023 – 2024	Radcliffe Fellowship, Harvard Radcliffe Institute
2020	SGS Dean's Advisory Council Award for the Mentoring of Graduate Students
2019	Warren I. Susman Award for Excellence in Teaching
2015 – 2016	Fulbright Scholarship (South Africa)
2015	Fellowship, American Association for the Advancement of Science
2012	Presidential Fellowship for Teaching Excellence
2010	SAS Award for Distinguished Contributions to Undergraduate Education
2010	Society of Physics Students Outstanding Teacher Award
2010	National Science Foundation CAREER Award
2007	Kavli Foundation Fellowship
1995 – 1998	National Science Foundation Graduate Research Fellowship

Teaching

Physics 109 (Astronomy and Cosmology: The Solar System): Fall 2013–14, 2018, 2021
Physics 110 (Astronomy and Cosmology: Stars, Galaxies, and the Universe): Spring 2021

Physics 343 (Observational Radio Astronomy): Spring 2008–09, 2011–19
Physics 343/346 (Observational Astronomy): Spring 2020, 2025–26
Physics 442 (High Energy Astrophysics and Radiative Processes): Fall 2022, 2024
Physics 443 (Galaxies and the Milky Way): Spring 2023
Physics 607 (Galaxies and Galaxy Dynamics): Spring 2022
Physics 610 (Interstellar Matter): Spring 2007, 2010; Fall 2012, 2017, 2025
Physics 629 (Observational Techniques): Fall 2007, 2010
School of Arts and Sciences Honors Seminar (Extraterrestrial Life): Fall 2008, 2011, 2019
Byrne Seminar (Radio Astronomy: Jersey Roots, Global Reach): Fall 2012–14; Spring 2017
Byrne Seminar (The Poetry of Astronomy), with C. Williams: Spring 2016, 2018–19
Byrne Seminar (Launching Your Successful STEM Career), with C. Keeton: Fall 2017–19

Research mentorship

Postdoctoral researchers (1):

2015 – 2018 Dr. Ximena Fernández (Rutgers University)
– NSF Astronomy & Astrophysics Postdoctoral Fellow

Graduate students (17):

2025 – Mahpara Tasnim (Rutgers University)
2025 – Chris Henry (Rutgers University)
2025 – Craig Smith (University of the Western Cape)
– co-supervised with E. Elson (UWC) & M. Glowacki (Edinburgh)
2023 – Mika Naidoo (University of the Witwatersrand)
– co-supervised with R. Deane & S. Makhathini (Wits University)
2022 – Derek Zapata (Rutgers University)
2019 – Nandrianina Randriamiarinarivo (University of the Western Cape)
– co-supervised with E. Elson & R. Maartens (UWC)
2019 – 2024 Dr. Amir Kazemi-Moridani (Rutgers University)
2017 – 2023 Dr. Anthony Young (Rutgers University)
2013 – 2019 Dr. John Wu (Rutgers University)
2012 – 2019 Dr. Jesus Rivera (Rutgers University)
2011 – 2014 Dr. Amitpal Tagore (Rutgers University)
– co-supervised with C. Keeton (Rutgers)
2009 – 2010 Dr. Ross Fadely (Rutgers University)
– co-supervised with C. Keeton (Rutgers)
2009 – 2013 Dr. Robert Lindner (Rutgers University)
2008 – 2013 Dr. Chelsea Sharon (Rutgers University)
2008 – 2012 Dr. Paula Aguirre (Pontificia Universidad Católica)
– co-supervised with L. Infante (Católica)
2004 – 2010 Dr. Lisa Wei (University of Maryland)
– co-supervised with S. Vogel (Maryland) & S. Kannappan (North Carolina)
2004 – 2005 Dr. Giovanni Cresci (Arcetri Observatory & MPI für extraterrestrische Physik)
– co-supervised with F. Mannucci (Arcetri), R. Davies, & M. Lehnert (MPE)

Undergraduate students (36):

2025 – 2026	Jacen Nisbet (Rutgers University)
	– co-supervised with C. Keeton (Rutgers)
2025	Emily Pham (Rutgers University)
2024 – 2025	Gabriel Cruz (Rutgers University)
	– co-supervised with L. Sjouwerman (NRAO) & C. Tremblay (SETI Institute)
2023	Samuel Carlos (New Jersey Institute of Technology/REU)
2022 – 2023	Sridhar Kumar (Rutgers University)
2021 – 2022	Frederick Jackson (Jackson State University/REU)
2021 – 2022	Michael Wozniak (Rutgers University)
2020	Joseph Barr (Rutgers University)
	– co-supervised with C. Keeton (Rutgers)
2019	Steve Deonarine (Rutgers University)
	– co-supervised with C. Keeton (Rutgers)
2018 – 2019	Anthony Tenorio-Coronel (Rutgers University)
	– co-supervised with C. Keeton (Rutgers)
2018 – 2019	Marcell Howard (Case Western Reserve University/REU)
2017 – 2020	Antoine Washington (Rutgers University)
2017 – 2018	Michael Makmur (Rutgers University)
	– co-supervised with R. Somerville (Rutgers)
2016 – 2017	Manuel Perez III (University of Redlands/REU)
2016	Isaiah Harrison (Rutgers University)
2016 – 2017	Madhura Khandekar (Rutgers University)
2016 – 2017	Waleed Qawasmi (Rutgers University)
2015	Dr. Sabrina Appel (Reed College/REU)
2014	Adrian Meyers (Columbia University/REU)
2013	Dr. Kirsten Hall (University of North Carolina/RISE/REU)
2013 – 2015	Dr. John Tamanas (Rutgers University)
2012 – 2014	Peter Chi (Rutgers University)
2012 – 2015	Dr. Asher Wasserman (Rutgers University)
	– co-supervised with S. Kannappan (North Carolina)
2012	Dr. Megan Jones (University of Wisconsin)
	– co-supervised with M. Bershady & E. Wilcots (Wisconsin)
2011 – 2012	Dr. Benjamin Forrest (Rutgers University)
2011	Dr. Lexi René (Brooklyn College/RISE)
2010 – 2011	Dr. Chang Hoon Hahn (Rutgers University)
2010 – 2011	Timothy Conklin (Rutgers University)
2010	Bruno Pinto (Hunter College/RISE)
2009	Whitney Kropat (University of Washington/RISE)
2009 – 2012	Dr. Kiersten Ruisard (Rutgers University)
2008 – 2010	Dr. Edward Lochocki (Rutgers University)
2008 – 2009	Dr. Gautam Jain (Rutgers University)
2008 – 2009	Dr. Adam Tomczak (Rutgers University)
	– co-supervised with C. Keeton (Rutgers)

2008	Dr. Stephen Sirisky (Rutgers University)
2006 – 2008	Ilene Mitchell (Rutgers University) – co-supervised with K. O'Neil (NRAO)

Ten of eleven undergraduates from outside Rutgers participated in the physics and astronomy Research Experiences for Undergraduates (REU) program and/or the broader Research Intensive Summer Experience (RISE) program at Rutgers. Of the 25 Rutgers undergraduates, nine wrote honors theses (Cruz, Forrest, Hahn, Kumar, Makmur, Nisbet, Tomczak, Washington, Wasserman) and three won Goldwater Scholarships (Lochocki, Ruisard, Wasserman), and one won an American Eagle Michael Tranghese Leadership Award (Forrest).

Publications

158 refereed papers (published or in press) have garnered 11,158 citations, for an h index of 56 and an m index (h divided by years since first publication) of 2.15. One co-edited conference proceedings: *From Z-Machines to ALMA: (Sub)millimeter Spectroscopy of Galaxies* (2007, eds. Baker, Glenn, Harris, Mangum, & Yun, Astronomical Society of the Pacific Conference Series, Volume 375).

Grants

Awarded \$3000 of internal research funding, \$8433 of external education/outreach funding, and \$3,178,188 of external research funding. Most significant ($\geq$ \$45,000) grants:

2023 – 2026	"LADUMA: Reaching the Highest Redshifts with the..." NSF, Astronomy & Astrophysics (PI)	\$391,606
2018 – 2023	"Collaborative Research: Observing the Cosmic Evolution of..." NSF, Astronomy & Astrophysics (PI)	\$336,900
2017 – 2022	"Strong Gravitational Lensing at High Spectral Resolution" NSF, Astronomy & Astrophysics (Co-PI; PI = C. Keeton)	\$306,354
2016 – 2023	"REU Site: Physics and Astronomy Research at Rutgers" NSF, Physics, Astronomy, & Materials REU (PI)	\$299,392
2013 – 2017	"REU Site: Physics and Astronomy at Rutgers: The On-Ramp at..." NSF, Physics & Astronomy REU (PI)	\$272,594
2013 – 2016	"CACHÉ: the Comprehensive ACT Cluster *Herschel* Experiment" *Herschel Space Observatory*, Cycle 2 observing (PI)	\$47,600
2011 – 2012	"U.S.-South Africa Collaboration: Catalyzing a Deep Neutral..." NSF, OISE CNIC (PI)	\$45,360
2010 – 2019	"The Cosmic Evolution of Dense Gas in Star-Forming Galaxies" NSF, CAREER (PI)	\$736,222
2009 – 2011	"Doubling the Sample of Bright Lensed LBGs..." Observed by *Spitzer*" *Spitzer Space Telescope*, Cycle 5 observing (CoI; PI = S. Allam)	\$55,114
2008 – 2011	"NICMOS imaging of submillimeter galaxies..." *Hubble Space Telescope*, Cycle 16 observing (PI)	\$101,509
2007 – 2012	"Nowhere Left to Hide: Closing in on Dusty Galaxies..." NSF, Astronomy & Astrophysics (PI)	\$291,912

Scientific talks

30 colloquia, 28 invited conference talks, 30 contributed conference talks, one invited review ("30 Years of IRAM" conference in Grenoble, France), one set of invited lectures (TIARA Winter School in Hsinchu, Taiwan), one invited discussion, and 63 additional seminars at external institutions. Outreach efforts include 43 talks to high school, college, and general public audiences.

Professional service (selected)

2025	ALMA Proposal Review Committee (Cycle 12)
2025 –	Space Telescope Science Institute Visiting Committee
2023 – 2025	Alternate member rep., Association of Universities for Research in Astronomy
2022 –	Committee on Astronomy and Public Policy (co-chair, 2023–24, 2025–26) American Astronomical Society
2022 – 2025	ngVLA Science Advisory Council (Executive Committee, 2022–24)
2021 – 2022	NRAO Time Allocation Committee (4 proposal cycles) NRAO Science Review Panel (chair, semesters 21B–23A) NGA = Normal galaxies
2020 – 2021	Nominating Committee, Association of Universities for Research in Astronomy
2019 – 2021	Panel on Radio/Millimeter/Submillimeter Observations from the Ground (chair) Astro2020: the Astronomy and Astrophysics Decadal Survey
2019 – 2025	Board of Directors, Association of Universities for Research in Astronomy (vice chair, 2024–25)
2019	ALMA International Visiting Committee
2019	Committee of Visitors, NSF Division of Physics
2017 – 2019	MIAPP programme organizing committee (corresponding coordinator) "Galaxy Evolution in a New Era of H I Surveys"
2015	Very Large Array Sky Survey community review panel (chair)
2014 – 2015	Scientific and local organizing committees (co-chair & chair) 2015 SKA Pathfinder H I Science Coordination Committee workshop
2014 – 2023	Member representative, Association of Universities for Research in Astronomy
2013 – 2015	National executive committee and local organizing committee APS Conference for Undergraduate Women in Physics (CUWiP)
2013 – 2014	NRAO Time Allocation Committee (4 proposal cycles; chair, semesters 14A–15A) NRAO Science Review Panel (chair, semesters 13B–15A) NGA = Normal galaxies
2011 –	Square Kilometre Array [international] H I Galaxy Science Working Group
2011 – 2012	NRAO Science Review Panel (4 proposal cycles) HIZ = High redshift and source surveys
2011 – 2014	ALMA Review Panel (Cycles 0–2; deputy chair, Cycles 1–2)
2010 – 2011	Scientific organizing committee "Multiwavelength Views of the ISM in High-Redshift Galaxies"

2010 – 2011	Scientific organizing committee "Building on New Worlds, New Horizons"
2009 – 2010	CARMA time allocation committee (2 proposal cycles)
2009 – 2010	Science Frontier Panel on "Galaxies across Cosmic Time" Astro2010: the Astronomy and Astrophysics Decadal Survey
2008 – 2011	ALMA [international] Science Advisory Committee
2008	Scientific organizing committee "The EVLA Vision: Galaxies Through Cosmic Time"
2007 – 2008	Scientific organizing committee (co-chair) "Transformational Science with ALMA: The Birth and Feedback of Massive Stars, Within and Beyond the Galaxy"
2007 – 2009	Science Advisory Group for the EVLA
2006 – 2009	IRAM Program Committee (i.e., time allocation committee; 6 proposal cycles; deputy chair, spring 2007; chair, fall 2007)
2006 – 2014	Committee on the Status of Minorities in Astronomy American Astronomical Society
2005 – 2007	VLA proposal referee (Normal galaxies)
2005 – 2006	Scientific organizing committee (chair) "From Z-Machines to ALMA: (Sub)millimeter Spectroscopy of Galaxies"
2005 – 2011	ALMA North American Science Advisory Committee (chair, 2007–2008)

Department and university† service (selected)

2025 –	Seminar In Graduate Mentoring for Astronomy and Physics (SIGMA-P)
2022 –	†New Brunswick Faculty Council (Executive Committee, 2025–27)
2022 – 2023	†Discovery Advantage initiative (Executive Steering Committee; Advising and Academic Support workstream)
2019 – 2022	†Aresty Research Center Advisory Council
2017 – 2019	†Rutgers Postdoctoral Advisory Council
2017 – 2020	†Rutgers Geology Museum Advisory Committee
2017	Committee On New Direction of Research (CONDOR)
2017	Peer Evaluation Committee, Faculty Compensation Program
2016	†Honorary degree nominator (recipient: S. Jocelyn Bell Burnell)
2016 – 2020	Seminar In Graduate Mentoring for Astronomy and Physics (SIGMA-P)
2015 – 2018	†Honors Committee (School of Arts and Sciences)
2015 – 2022	†Honors College Faculty Board
2014 –	†Mock interview panelist, Office of Distinguished Fellowships
2013	†"Envisioning Tomorrow's University" strategic planning committee
2013 –	Faculty liaison, Friends of Rutgers Astronomy
2013 – 2018	Director, NSF Physics and Astronomy REU site
2012 – 2014	†Physical & Mathematical Sciences & Engineering Area Committee (GSNB)
2012 – 2013	†Nominations and Elections Committee (School of Arts and Sciences)