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ACADEMIC QUALIFICATIONS & POSITIONS

- 2021– present:** Science Editor, Extra-galactic Astrophysics and Cosmology, The American Astronomical Society’s The Astrophysical Journals.
- 2021 – 2022:** Chair, National Astronomy and Astrophysics Advisory Committee to NASA, NSF and DoE.
- 2019 – 2022:** Member, National Astronomy and Astrophysics Advisory Committee to NASA, NSF and DoE.
- 2019:** Distinguished Visiting Professor at the International Center for Theoretical Sciences, Bangalore, India.
- 2019 – present:** Advisor, Guggenheim Foundation, New York.
- 2019:** Distinguished Visiting Professor at the Institute for Astronomy, Manoa, Hawaii.
- 2017 – 2022:** Member, NASA LISA Science Team, NASA.
- 2017 – 2022:** Member, International Advisory Committee of the Higgs Center for Fundamental Physics, Edinburgh, Scotland.
- 2017 – 2023:** Director, Franke Program in Science and the Humanities, Yale University.
- 2017 – present:** Associate, Flatiron Institute, Center for Computational Astrophysics, New York, NY.
- 2017 – present:** Affiliate, Black Hole Initiative, Harvard University, Cambridge, MA.
- 2016 –2020:** Chair-line, Division of Astrophysics, American Physical Society.
- 2014 –2017:** Chair, Yale College Science Council.
- 2013 – present:** Primary Investigator of the International CATS Scientific Collaboration.
- 2012:** Honorary Professor (lifetime appointment), University of Delhi, New Delhi, India.
- 2011 – 2014:** Chair, Womens Faculty Forum, Yale University, New Haven, CT.
- 2011 – 2012:** Caroline Herschel Distinguished Visiting Professor, Space Telescope Science Institute, Baltimore, MD.
- 2010 – 2011:** Visiting Professor, Institute for Theory and Computation, Harvard University, Cambridge, MA.

2010 – 2011: Visiting Fellow, Joint Institute for Laboratory Astrophysics Fellow, University of Colorado at Boulder, Boulder, CO.

2009 – present: Sophie and Tycho Brahe Professorship, DARK Cosmology Center, Niels Bohr Institute, Copenhagen, Denmark.

2009 – present: Professor, Departments of Astronomy & Physics, Yale University, New Haven, CT.

2005 – 2008: Associate Professor, Departments of Astronomy & Physics, Yale University, New Haven, CT.

2005 – present: Member, Scientific Advisory Board, Petters Research Institute, Belize.

2005 – present: Associate, Dark Cosmology Centre, Niels Bohr Institute, University of Copenhagen, Denmark.

2004 – 2005: Long-term visitor at the Institute for Advanced Study, Princeton, NJ.

2002 – 2003: Visiting Professor, Institute of Astronomy, Cambridge, U.K.

2000 – 2005: Assistant Professor, Department of Astronomy, Yale University, New Haven, CT, and a joint appointment in the Department of Physics.

1998 – 1999: Visiting Fellow at the Canadian Institute for Theoretical Astrophysics, Toronto, Canada.

1997 – 2003: Title A Research Fellowship, Trinity College, Cambridge, U.K.

1994 – 1999: Ph.D. in Astrophysics from the Institute of Astronomy, University of Cambridge, Cambridge, U.K. Thesis advisor: Professor Martin Rees

1991 – 1994: Master of Science (S.M.) awarded from Program in Science, Technology & Society at the Massachusetts Institute of Technology, Cambridge, MA.

1986 – 1991: Bachelor of Science in Physics (Course VIIIA) & Bachelor of Science in Mathematics from the Massachusetts Institute of Technology, Cambridge, MA.

FELLOWSHIPS, HONORS & AWARDS

2021: Invited plenary speaker at the Annual meeting of the American Astronomical Society.

2021: Annual Nelson Lecture, Georgia State University.

2020: Awarded the Schrodinger Visiting Chair, Pauli Center for Theoretical Physics, ETH & University of Zurich, Switzerland.

2019: Annual McLennan Lecture, St. Mary's University, Halifax, Canada.

2019: Annual C.V. Vishveshwara Lecture, International Center for Theoretical Sciences, Bangalore, India.

2019: CIERA Distinguished Lecture, Northwestern University, Evanston, Illinois.

2019: Invited Distinguished Visiting Fellow, Royal Academy of Art on Science & Art, London, U.K.

2019: Invited to show VR experience *Lunatick* at the Venice Biennale, Venice, Italy.

2019: Invited Speaker, World Forum, Boulder, Colorado.

2019: Distinguished Immigrant Award in Recognition of Contributions to Science, State of Connecticut.

2019: Invited speaker *Better Tomorrow Distinguished Speaker Series*, Manoa, Hawaii.

2019: Annual Bartlett Lecture at the Frontiers of Science, Linda Hall Library of Science, Kansas City, Missouri.

2018: Gustav Ranis International Book Prize for *Mapping The Heavens*, MacMillan Center for International Studies, Yale University.

2018: The WTMA Roy Moon Distinguished Lectureship, San Angelo, TX.

2017: Kameshwar Wali Lecturer, Syracuse University, Syracuse, NY.

2017: The Annual Smithsonian Lecture, Washington D.C.

2017: Benjamin Dean Lecture, California Academy of Sciences, San Francisco, CA.

2017: Finalist, Physics World's Best Science Books of the Year for book *Mapping the Heavens*; Honorable Mention Award, American Publishers Association for book *Mapping the Heavens*.

2016: Invited Opening Speaker, Aspen Ideas Festival, Aspen Institute, Aspen, CO.

2015: Subrahmanyan Bharati Award for Achievement in the Sciences, Vanavil Cultural Foundation, Chennai, India.

2015: Tamil-American Pioneer Award, Foundation of Tamil Americans, San Jose, CA.

2014: Elected Fellow of the Board for the Edge Foundation, Zug, Switzerland.

2013: The Niels Bohr Lecture, Niels Bohr Institute, University of Copenhagen, Denmark.

2013: Distinguished visitor, Morningside College, Hongkong, P.R.C.

2012 – present: Member, Advisory Board, ScienceNow, NOVA.

2012 – 2014: Advisor, Science & Technology Futures, Planning Commission, Government of India.

2012: Paco Yndurian Lecture & Fellowship, Department of Theoretical Physics, UAM, Madrid, Spain.

2011: Fellowship at the Rockefeller Bellagio Center, Bellagio, Italy.

2011: India Empire NRI Award, India Empire Foundation, India.

2011: Fellow, American Physical Society.

2010: Fellow, Explorers Club.

2010: Board Member, Indiaspora Foundation.

2010: Face of the Future Award, The India Abroad Foundation.

2009: Award for Academic Achievement from the Global Organization of People of Indian Origin.

2009: Guggenheim Fellowship, John Simon Guggenheim Foundation.

2008: Emeline Bigelow Conland Fellow and Bunting Fellow, Radcliffe Institute for Advanced Study, Harvard University.

2008: Fellow, Royal Astronomical Society.

2006: Whitney Humanities Fellowship, Yale University.

2006: Kavli Frontiers Fellow, National Academy of Sciences.

1997: Elected to Title A Research Fellowship, Trinity College.

1993: Fellow, Cambridge Philosophical Society; Fellow, Cambridge Commonwealth Society.

1993: Awarded the Isaac Newton Studentship, University of Cambridge; External Research Studentship, Trinity College.

1991: Ida Green Fellowship, Massachusetts Institute of Technology.

1990: The Carroll Wilson Award, Massachusetts Institute of Technology.

1989: Elected to National Honor Societies - Tau Beta Pi, Sigma Pi Sigma and Sigma Xi.

1988: Peter J. Eloranta Award for Undergraduate Research and the Burchard Fellowship, Massachusetts Institute of Technology.

RESEARCH INTERESTS

Gravitational lensing: reconstructing clusters with lensing; combining strong and weak lensing analysis techniques; weak lensing versus intrinsic alignments; high-resolution dark matter mapping methods; the role of structure along the line of sight in lensing; using lensing to probe the dynamics of galaxy-clusters.

Selected Publications: [59], [74], [81], [139], [141], [145] & [162] as listed in this CV.

Cluster mass modeling: cluster surveys and lensing mass reconstructions; the Hubble Frontier Fields; comparison of lens modeling methodologies; magnification maps and uses of clusters as nature's telescopes; using caustic areas to determine cluster virial masses; virialization and cluster mass assembly; mass profiles for cluster-lenses.

Selected Publications: [34], [41], [60], [96], [107], [123] & [159] as listed in this CV.

Substructure as a probe of dark matter: studies of the assembly of clusters in cosmological simulations; use of clusters as astrophysical laboratories to study dynamical processes like ram pressure stripping and tidal stripping; comparing lensing observations to cosmological simulations; new metrics to probe small-structure in the cluster-lenses.

Selected Publications: [5], [39], [108], [124], [132] & [133] as listed in this CV.

Cosmography with lensing: constraining dark matter and dark energy with cluster strong lensing; lensing systematics for use of clusters as cosmological probes; using lensing arc-statistics to probe non-gaussianity; consequences of the derived scaling relations for cluster lenses on the determination of cosmological parameters.

Selected Publications: [70], [78], [85], [88], [91] & [99] as listed in this CV.

Black hole physics: the physics of accretion; super-Eddington growth; the first black holes and first galaxies; formation of massive seed black holes at high-redshift; properties of direct collapse black hole seeds; new channel for the formation of inter-mediate mass black holes; discriminating seed formation mechanisms.

Selected Significant Publications: [4],[37],[58],[106], [113] & [136] as listed in this CV.

Issues in galaxy formation: coupling disks and jets in AGN; role of quasars and their large-scale outflows; kinematic Sunyaev-Zeldovich effect from quasars; formation of dwarf galaxies from quasar outflows; detailed relationship between star formation and AGN activity; mass-to-light ratios of galaxies as a function of cosmic environment;

Selected Publications: [67], [151], [153], [154] & [155] as listed in this CV.

Co-evolution of galaxies and their black holes: the connection between black holes and their host galaxies in the larger context of structure formation in the universe; feedback and limits to black hole growth in the early and late universe; demographic studies of the growth and evolution of black hole populations tracing correlations; the origin of co-evolution and signatures in early black holes.

Selected Publications: [36], [66], [77], [95] & [152] as listed in this CV.

Multi-Messenger Astrophysics: the merger and evolution of supermassive black hole binaries in gas-rich galaxy cores; the electro-magnetic and gravitational wave signatures from these systems; gas-driven mergers of binary black holes; the evolution of eccentricity in binary black hole mergers; constraints on black hole seeds from multi-wavelength and gravitational wave data.

Selected Publications: [11], [27], [86], [122] & [137] as listed in this CV.

Machine Learning & Data-driven discovery: Development of new research tools that consolidate and co-locate observational and simulated data of galaxies, quasars and simulated halos to explore the black hole - host galaxy - parent dark matter halo connection; pilot project on high-redshift quasars with creation of novel database *QuasarNet* to facilitate use of machine learning algorithms for making predictions for upcoming space missions and ground-based observatories, on-going work in collaboration with Google-X and the Google Computing Platform.

Selected Publications: [1], [25], [55], [57] & [80] as listed in this CV.

COMMITTEE & LEADERSHIP EXPERIENCE

Fall 2020 – present: Advisory Board Member, Presidential Task-Force on Education beyond 2021, M.I.T.; Advisory Board of Quanta Magazine; Expert Reviewer for Science & Nature; External Expert Grant Reviewer Israeli National Science Foundation; External Expert Grant Reviewer for the European Union’s Innovation Research Incentive Scheme; Reviewer, Radcliffe Fellowship, Harvard University; Reviewer, Guggenheim Fellowship, Guggenheim Foundation; External Expert Reviewer for the Hawking Fellowship, EPSRC/STFC, UKRI, U.K.

Fall 2019 – present: Invited Panelist, Implementing Dual Anonymous Review in Astrophysics Workshop at Space Telescope Science Institute, member of the 2020 jury for PEN America’s E.O. Wilson Literary Science Writing Award; Reviewer, Guggenheim Fellowship, Guggenheim Foundation; Member International Search Committee for selection of the Inaugural Higgs Chair at the University of Edinburgh, U.K.

Summer 2019: Principal Organizer of Aspen Summer Workshop titled *Progress after impasse: new frontiers in dark matter*; Lead Organizer for Black Hole Science in the LISA era at the Flatiron Institute in New York; Member of the Advisory Board for *Scientific American*; Expert Reviewer for Science & Nature; External Expert Grant Reviewer for the European Union’s Innovation Research Incentive Scheme.

Fall 2018 – present: Director, Franke Program in Science and the Humanities at Yale University, catalyzed and seeded several cross-disciplinary research programs and collaborations; mentor and nurture inter-disciplinary Franke undergraduate, graduate and post-doctoral fellows.

Fall 2018: Super-TAC Chair for HST Cycle 26 first double-blind proposal review in the Physical Sciences; Member of inaugural jury for the JCB International Prize for Literature; External Expert Grant Reviewer for the European Union’s Innovation Research Incentive Scheme; Reviewer, Guggenheim Fellowship, Guggenheim Foundation.

Spring 2018: Invited lecturer at the Kavli Summer Program in Astrophysics at the Center for Computational Astrophysics at the Flatiron Institute; Co-organizer of the Eternal Multi-Messenger Workshop at the Flatiron Institute.

Fall 2017: Member, Higgs Center International Advisory Committee, University of Edinburgh, Scotland; Selected member of the NASA LISA Science Team and invited to serve on the International Scientific Advisory Committee for conference on AGN Activity through cosmic time at Durham University, Durham, U.K.

Spring 2017: Scientific organizing committee for conference on Tidal Disruption, Cambridge, U.K. and Workshop on Titans of the early universe, Prato, Italy; Scientific Organizer of Annual NAM session on Dark Matter, Hull, U.K.; External Expert Grant Reviewer for the European Union's Innovation Research Incentive Scheme.

Summer 2016: Co-Organizer of Aspen Summer Program titled *Emergence, Evolution and Effects of Black Holes in the Universe: The Next 50 Years of Black Hole Physics*; Principal Organizer of Radcliffe Exploratory Workshop titled *Rethinking Dark Matter*.

Spring 2016: Scientific Organizing Committee for EWASS workshop on the Lensing and HST Frontier Fields: a progress report; Thesis Evaluation Committee for the University of Zurich; Tenure Ad-Hoc Committee for Harvard University, Department of Astronomy; External Grant Reviewer for Department of Energy; External Grant Reviewer for NASA; Grant Reviewer for the Physical Sciences for the John Templeton Foundation.

Spring 2015: Scientific Organizing Committee for JSI conference on Active Black Holes, Conference on Future X-ray Surveys; Co-Chair, Special Meeting at the IAU2015 on HST Frontier Fields; Member Selection Committee for Professorship in Astrophysics at the University of Oslo; Member of the International Association of Research Universities (IARU) Advisory Group on Gender Equity; Advisor on Gender Equity and Inclusion for the Swiss National Science Foundation; External Reviewer HST Time Allocation Committee; External Thesis Evaluator for University of Melbourne, Department of Astronomy.

Spring 2014: Scientific Organizing Committee, conference *The Physics of first star and galaxy formation*, at the Higgs Center for Theoretical Physics, University of Edinburgh, Scotland.

Fall 2014: Co-Chair Scientific Organizing Committee for the Yale Frontier Fields Workshop, New Haven; Scientific Organizing Committee, conference titled *Einstein's Legacy: celebrating General Relativity*, India; Member, Alumni Task Force on the Future of an MIT Education; Member, Grant Review Panel for the NASA Astrophysical Theory Program; Scientific Organizing Committee for a Special Session at the International Astronomers Union (IAU) Meeting on the HST Frontier Fields; Invited Member, Science Definition Team of proposed X-ray satellite SMART-X.

Spring 2013: Chair, Scientific Organizing Committee for workshop titled Cluster Lensing Peering in the Past and Prospects for the Future held at the Space Telescope Science Institute, Baltimore; Organizing committee of the Cosmology Summer School at University of California at Santa Cruz; Member, Grant Review Panel for the National Science Foundation's Astrophysics division.

Fall 2013: Group Leader for black hole formation at the KITP Program on Black Holes at Santa Barbara; Organizing Committee member for the panel on Gender Equity in Higher Education at the International Association of Research Universities (IARU) bi-annual meeting at ETH in Zurich; Scientific Organizing Committee for Cosmology Winter School in Durban, South Africa.

Fall 2012: Chair, Scientific Organizing Committee, conference titled *Cluster Lensing: Peering into the Past, Planning for the Future*, STScI, Baltimore in 2013; Member, International Search Committee for the Niels Bohr Chair in Astronomy at the University of Copenhagen, Denmark; Scientific Organizing Committee, conference titled *Re-ionization in the Red Center: New windows on the high redshift Universe*, Ayers Rock, Australia 2013; Member, Hubble Space Telescope Deep Fields Initiative Committee, STScI.

Spring 2012: Co-organizer, conference on Gender Parity titled *Parity as Practice* and *The Politics of Equality* at Yale Law School in March; Scientific Organizing Committee, conference titled *Origins of the Expanding Universe 1912-1932* at Lowell Observatory, Arizona in September.

Fall 2011: Chair, Organizing Committee for inter-disciplinary conference titled *Why is there anything in the universe?* held at Yale University, New Haven.

Spring 2011: Chair, Scientific Organizing Committee for workshop titled *DEUS: Current and Future Challenges of the Early and Dark Universe* held at the Niels Bohr Institute, Copenhagen, Denmark; Chair, Cosmology Panel for Time Allocation on the Hubble Space Telescope, NASA.

Spring 2010: Member, Proposal Review Committee for National Science Foundation, Department of Energy and NASA; Member, Hubble Fellowship Selection Committee and Time Allocation Committee for Cycle 18 of the Hubble Space Telescope.

Fall 2009: Chair, Scientific Organizing Committee for meeting titled *Angular Momentum Transport and Energy Release in Accretion Discs*, Institute of Astronomy, University of Cambridge, Cambridge, U.K.; Member, Proposal Review Committee for the NASA Astrophysical Theory Program.

Summer 2009: Co-organizer of Joint Discussion session titled *Dark Matter in Early-type Galaxies* for the International Astronomers Union, General Assembly in August 2009.

Spring 2008: Member, Proposal Review Committee for the Department of Energy; Member, Official Yale delegation to the International Association of Research Universities meeting held at Yale University, New Haven; Member of National Science Foundation post-doctoral fellowship selection panel.

Spring 2007: Member of National Science Foundation grant selection panel for assessing theory proposals; Scientific Organizing Committee for the workshop on *Astrophysical Probes of the Nature of Dark Matter* held in March 2007 at the Center for Cosmology, University of California, Irvine.

Summer 2006 - present: Scientific Advisory Board of SCIENCE NOW at NOVA, WGBH Boston.

Summer 2006: Member of International Scientific Organizing Committee of the conference *Marseille Cosmology Conference 2007* held at Marseille, France; Member of National Science Foundation post-doctoral fellowship selection panel.

Summer 2004: Member of International Scientific Organizing Committee of the conference *The Quest for a Concordance Cosmology and beyond* held at Cambridge, U.K.

Summer 2002: Member of International Scientific Organizing Committee of the conference *Making Light of Gravity* held at Cambridge, U.K.

Summer 2001: Organized an international conference titled *The Shapes of Galaxies and their Dark Matter Halos* from 28th - 31st May 2001 at Yale, attended by over 80 participants. Editor of the conference proceedings published by World Scientific (2002).

Spring 2001 - 2006: Member of the Advisory Committee for the American Association for the Advancement of Science's (AAAS) Program of Dialogue on Science, Ethics and Religion.

Fall 1999: Member of the Extra-Galactic Time Allocation Committee (TAC) for the Cycle 9 Program of the Hubble Space Telescope.

LEADERSHIP ACTIVITIES RELEVANT TO EQUITY & INCLUSION

Former Chair of the Womens Faculty Forum at Yale (2011-2014), an inter-departmental advocacy group reporting to the Provost; pioneered and piloted many initiatives - peer mentoring and side-step mentoring now adopted by the University; Member, Steering Committee of WFF since 2003; Co-organized two conferences supported by the Gruber Foundation on *Parity as Practice: The Politics of Equality* and *Contesting Gender Inequalities*; awarded grant from The Sloan Foundation, conducted a gender equity assessment of the Faculty of Arts & Sciences at Yale in collaboration with Edge Strategy, Switzerland, the results of which led to major institutional change and new policies.

Currently the President of the Board of the non-profit Edge Foundation, Zug, Switzerland that works toward gender equity in the workplace.

As Co-Chair of the Womens Faculty Forum Working Group on Sexual Misconduct, developed and co-authored with Co-Chair Prof. Connie Bagley, School of Management the guidelines for dealing with sexual misconduct that eventually catalyzed the formation of Yale's University Wide Committee dealing with Sexual and Ethical misconduct.

As Chair of the Division of Astrophysics of the American Physical Society, spear-headed the re-naming of the dissertation prize to the Cecilia Payne-Gaposchkin Prize and helped fund-raise for it from the Heising-Simons Foundation.

Helped with the organization of and Chaired the Time Allocation Committee for the Hubble Space Telescope and oversaw the first double-blind review process in the physical sciences in the United States; Invited Speaker at the workshop hosted by STScI for NSF, NASA, DoE, DoD, ESO, ESA and other international funding agencies exploring phasing in double-blind proposal reviews.

Serve on the External Advisory Board for the NSF-ADVANCE grant program that addresses gender equity and institutional change for the University of Massachusetts, Amherst (2018-2023).

Have mentored and continue to mentor several young URM scholars in Astronomy and Astrophysics as well as Theoretical Physics in the United States, Europe and India.

RECENT GRANTS

Summer 2020: Grant from the John Templeton Foundation's Big Ideas Program for inter-disciplinary project titled *Understanding the nature of inference*.

Summer 2019 & Summer 2020: Summer Intern supported by GoogleX at Mountain View Campus to work on new machine learning platform.

Spring 2019: Recipient of a grant for the pilot phase for a project on creating a next-generation research tool QuasarNet for black hole physics by Google-X.

Fall 2018: Recipient of a grant from HST Theory Program for the project on titled *Crisis in Cold Dark Matter?*.

Fall 2017: Recipient of a grant from NASA via the Space Telescope Science Institute for BUFFALO - a large observational program.

Summer 2016: Recipient of a Mapmaker grant from NASA via the Space Telescope Science Institute to produce magnification maps for the Frontier Fields Program.

Summer 2015, 2016: Recipient of a sub-award from Jet Propulsion Laboratory to perform simulations of HST Frontier Fields Lensing Clusters.

Summer 2015: Recipient of a Mapmaker grant from NASA via the Space Telescope Science Institute to produce magnification maps for the Frontier Fields Program.

Fall 2013: Co-Principal Investigator of a TCAN (Theoretical and Computational Astrophysics Network) grant from the National Science Foundation for project titled *The multi-scale physics of massive black holes*.

Fall 2012: Principal Investigator on grant from Sloan Foundation titled *Diagnosing the Pressure Points Along the Academic Pipeline for Women*.

Fall 2012: Co-Investigator on grant (Yale, Rutgers, Columbia University) titled *Big Questions in the Philosophy of Cosmology* funded by the John Templeton Foundation.

Spring 2011: Principal Investigator on grant titled *Epistemological problems in cosmology* and Co-Investigator on the conference grant titled *Why is there anything in the Universe?* funded by the Nour Foundation.

Summer 2010: Principal Investigator on project titled *Cosmography with cluster strong lensing* funded by National Science Foundation (NSF).

Summer 2010: Principal Investigator on *HST* theory project *Probing the relation between mass and light using flexion*, Cycle 18 Theory Program of the Hubble Space Telescope.

Summer 2010: Co-Investigator on *HST* project *An in-depth study of dark matter in the massive cluster merger MACSJ0358.8-2955*, Cycle 18 Theory Program of the Hubble Space Telescope.

LIST OF PUBLICATIONS

**Citation Statistics: Total number of citations - 13,190; h-index - 63
Number of papers: 162 (as of March, 2021)**

1. Natarajan, Priyamvada; Kwok, Sun-Tang; Khochfar, Sadegh; Nord, Brian; Sigurdsson, Stein; Tricot, Joe; George, Daniel & Hidary, Jack. 2021
Quasarnet: A new research platform for the data-driven investigation of black holes submitted to Nature Astronomy.
2. Ricarte, Angelo; Tremmel, Michael; Natarajan, Priyamvada & Quinn, Tom. 2021
Unveiling the Population of Wandering Black Holes via Electromagnetic Signatures submitted.
3. Ricarte, Angelo; Tremmel, Michael; Natarajan, Priyamvada; Zimmer, Charlotte & Quinn, Tom. 2021
The Origin and Demographics of Wandering Black Holes MNRAS, in press, arXiv:
4. Natarajan, Priyamvada. 2021
A new channel to form Intermediate Mass Black Holes throughout cosmic time MNRAS, 501, 1413.
5. Meneghetti, M; Davoli, G; Bergamini, P; Rosati, P; Natarajan, P. et al. 2020
An excess of small-scale gravitational lenses observed in galaxy clusters Science, Vol. 369, Issue 6509, 1347-1353.

6. Holley-Bockelmann, K. et al. 2020
Getting Ready for LISA: The Data, Support and Preparation Needed to Maximize US Participation in Space-Based Gravitational Wave Science
eprint arXiv:2012.02650.
7. Tam, S-I., et al. 2020.
The distribution of dark matter and gas spanning 6 Mpc around post-merger galaxy cluster MS-0451-03
MNRAS, 496, 4032.
8. Ricarte, Angelo; Tremmel, Michael; Natarajan, Priyamvada & Quinn, Thomas. 2020
A Link between Ram Pressure Stripping and Active Galactic Nuclei *ApJ, 895, L8.*
9. Niemeic, Anna., et al. 2020
hybrid-LENSTOOL: a self-consistent algorithm to model galaxy clusters with strong- and weak-lensing simultaneously
MNRAS, 493, 3331.
10. Steinhardt, C., et al., 2020
The BUFFALO HST Survey
ApJS, 247, 64.
11. Natarajan, Priyamvada et al. 2019.
Disentangling nature from nurture: tracing the origin of seed black holes, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS, 51, 7, 73.*
12. Cornish, Neil., et al. 2019.
The Discovery Potential of Space-Based Gravitational Wave Astronomy, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS, 51, 7, 76.*
13. Pacucci, Fabio., et al. 2019.
Detecting the Birth of Supermassive Black Holes Formed from Heavy Seeds, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS, 51, 7, 117.*
14. Baker, John., et al. 2019.
Multi-messenger science opportunities with mHz gravitational waves, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS, 51, 7, 123.*
15. Colpi, Monica., et al. 2019.
The Gravitational View of Massive Black Hole Mergers, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, 2BAAS, 51, 7, 383.*
16. Wang, Yun., et al. 2019.
Illuminating the dark universe with a very high density galaxy redshift survey over a wide area, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS, 51, 7, 508.*
17. Thorpe, James., et al. 2019.
The Laser Interferometer Space Antenna: Unveiling the Millihertz Gravitational Wave Sky, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS, 51, 7, 77.*
18. Holley-Bockelmann, K., et al. 2019.
Building a Field: The Future of Astronomy with Gravitational Waves, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS, 51, 7, 228.*
19. Mueller, G., et al. 2019.
Space based gravitational wave astronomy beyond LISA, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS, 51, 7, 243.*

20. Kashlinsky, S. et al. 2019.
Populations behind the source-subtracted cosmic infrared background anisotropies, *White paper submitted to the 2020 Decadal Survey, the NAS White Paper Repository, BAAS*, 51, 7, 37.
21. Bertone, G., et. al., 2019.
Gravitational wave probes of dark matter: challenges and opportunities,
White Paper submitted to arXiv.190710610
22. Woods, Tyrone., et. al., 2019.
Titans of the early Universe: The Prato statement on the origin of the first supermassive black holes,
PASA, 26, 37.
23. Ananna, T., et al., 2019.
VizieR Online Data Catalog: Stripe 82X survey multiwavelength catalog,
2019yCat, 18500066A.
24. Ricarte, Angelo; Pacucci, Fabio; Cappelluti, Nico; & Natarajan, Priyamvada 2019.
The clustering of undetected high-redshift black holes and their signatures in cosmic backgrounds,
MNRAS, 489, 1006.
25. Ricarte, Angelo; Tremmel, Michael; Natarajan, Priyamvada & Quinn, Tom 2019.
Tracing Black Hole and Galaxy Co-evolution in the Romulus Simulations,
MNRAS, 489, 802.
26. Tremmel, Michael et al., 2019.
Introducing RomulusC: A Cosmological Simulation of a Galaxy Cluster with Unprecedented Resolution,
MNRAS, 483, 3336.
27. Ricarte, Angelo & Natarajan, Priyamvada, 2018.
The Observational Signatures of Supermassive Black Hole Seeds,
MNRAS, 481, 3278.
28. Ricarte, Angelo & Natarajan, Priyamvada, 2018.
Exploring SMBH Assembly with Semi-analytic Modelling,
MNRAS, 474, 1995.
29. Cappelluti, Nico et al., 2018.
Searching for the 3.5 keV Line in the Deep Fields with Chandra: The 10 Ms Observations,
ApJ, 854, 179.
30. Jauzac, Mathilde et al., 2018.
Growing a Cosmic Beast: observations and simulations of MACSJ0717.5+3745,
MNRAS, 481, 2901.
31. Pacucci, Fabio; Natarajan, Priyamvada; et al., 2017.
Conditions for Optimal Growth of Black Hole Seeds,
ApJ Letters, 850, 42.
32. Ananna, Tonima Tasnim; et al., 2017.
AGN Populations in Large Volume X-ray Surveys: Photometric Redshifts and Population Types found in the Stripe 82X Survey,
ApJ, 850, 66.
33. Cappelluti, Nico et al., 2017.
Probing Large-scale Coherence between Spitzer IR and Chandra X-Ray Source-subtracted Cosmic Backgrounds,
ApJ, 847, 11.

34. Lotz, Jennifer; et al. 2017.
The Frontier Fields: Survey Design and Initial Results,
ApJ, 837, 97.
35. Trakhtenbrot, Benny; Volonteri, Marta; Natarajan, Priyamvada, 2017.
On the Accretion Rates and Radiative Efficiencies of the Highest-redshift Quasars,
ApJ, 836, 1.
36. Pacucci, Fabio; Natarajan, Priyamvada; Ferrara, Andrea, 2017.
Feedback Limits to Maximum Seed Masses of Black Holes,
ApJ, 835, 36.
37. Natarajan, Priyamvada; Pacucci, Fabio; Ferrara, Andrea; Agarwal, Bhaskar; Ricarte, Angelo;
Zackrisson, Eric & Cappelluti, Nico, 2017.
Unveiling the first black holes with JWST: multi-wavelength spectral predictions,
ApJ, 838, 117.
38. Cappelluti, Nico; et al., 2017.
The Chandra COSMOS Legacy Survey: Energy Spectrum of the Cosmic X-Ray Background and
Constraints on Undetected Populations,
ApJ, 837, 19.
39. Natarajan, Priyamvada; Chadayammuri, Urmila; Jauzac, Mathilde et al., 2017.
Mapping substructure in the HST Frontier Fields cluster lenses and in cosmological simulations,
MNRAS, 468, 1962.
40. Rexroth, Markus; Natarajan, Priyamvada; Kneib, Jean-Paul., 2016.
A new method to break the mass-sheet degeneracy using aperture moments,
MNRAS, 460, 2505.
41. Meneghetti, Massimo; Natarajan, Priyamvada; et al., 2017.
The Frontier Fields Lens Modeling Comparison Project,
MNRAS, 472, 3177.
42. Schwinn, Johannes; Jauzac, Mathilde; et al., 2016.
Abell 2744: Too much substructure for Lambda CDM?
MNRAS, 463, 3876.
43. Richard, Johan; et al. 2016.
Hubble Frontier Fields: predictions for the return of SN Refsdal with the MUSE and GMOS
spectrographs,
MNRAS, 457, 2029.
44. Agarwal, Bhaskar; Johnson, Jarrett L.; Zackrisson, Erik; Labbe, Ivo; van den Bosch, Frank C.;
Natarajan, Priyamvada; Khochfar, Sadegh, 2016.
Detecting direct collapse black holes: making the case for CR7,
MNRAS, 460, 4003
45. Jauzac, Mathilde: et al., 2016.
The extraordinary amount of substructure in the Hubble Frontier Fields cluster Abell 2744,
MNRAS, 463, 3876.
46. LaMassa, Stephanie, et al. 2016.
On R-W1 as a diagnostic to discover obscured active galactic nuclei in wide area X-ray surveys,
ApJ, 818, 88.
47. Park, Kwang-Ho; Ricotti, Massimo; Natarajan, Priyamvada; Wise, John; Bogdanovic, Tamara.,
2016.
Bulge-driven fueling of seed black holes,
ApJ, 818, 184.

48. Limousin, M. et al. 2016.
Strong-Lensing Analysis of MACS,J0717.5+3745 from Hubble Frontier Fields observations: How well can the mass distribution be constrained?
A&A, 588, 99.
49. Ricarte, Angelo; Natarajan, Priyamvada; Dai, Lixin; Coppi, Paolo, 2016.
Tidal Disruption Events by a Massive Black Hole Binary,
MNRAS, 458, 1712.
50. Agarwal, Bhaskar; Smith, Britton; Glover, Simon; Natarajan, Priyamvada; Khochfar, Sadegh, 2016.
New constraints on direct collapse black hole formation in the early Universe,
MNRAS, 459, 4209.
51. Jauzac, Mathilde; et al., 2015.
Hubble Frontier Fields: a high-precision strong-lensing analysis of the massive galaxy cluster Abell 2744 using 180 multiple images,
MNRAS, 452, 1437.
52. Jauzac, Mathilde; et al., 2015.
Hubble Frontier Fields: Predictions for the Return of SN Refsdal with the MUSE and GMOS Spectrographs,
MNRAS, 452, 1437.
53. Atek, Hakim; Richard, Johan; Jauzac, Mathilde; Kneib, Jean-Paul; et al., 2015.
Are Ultra-faint Galaxies at $z=6-8$ Responsible for Cosmic Reionization ? Combined Constraints from the Hubble Frontier Fields Clusters and Parallels,
ApJ, 814, 69.
54. Jauzac, Mathilde et al., 2015.
Hubble Frontier Fields : A High-Precision Strong-Lensing Mass Model of the Massive Galaxy Cluster Abell 2744 using 150 Multiple Images,
MNRAS, 446, 4132.
55. Kulier, Andrea; Ostriker, Jeremiah P.; Natarajan, Priyamvada; Lackner, Claire N.; Cen, Renyue, 2015.
Understanding Black Hole Mass Assembly via Accretion and Mergers at Late Times in Cosmological Simulations,
ApJ, 799, 178.
56. Atek, Hakim et al., 2015.
New Constraints on the Faint-end of the UV Luminosity Function at $z \sim 7 - 8$ using the Gravitational Lensing of the Hubble Frontier Fields Cluster A2744,
ApJ, 800, 18.
57. Natarajan, Priyamvada, 2014.
Seeds to monsters: tracing the growth of black holes in the universe,
Gravitation and Cosmology, 46, 1702.
58. Alexander Tal & Natarajan, Priyamvada, 2014.
Rapid growth of seed black holes in the early universe by supra-exponential accretion,
Science, 345, 1330.
59. D'Aloisio, Anson; Natarajan, Priyamvada & Shapiro, Paul, 2014.
The effect of large-scale structure on the magnification of high-redshift sources by cluster lenses,
MNRAS, 445, 3581.

60. Richard, Johan et al., 2014.
Mass and magnification maps for the Hubble Space Telescope Frontier Fields clusters: implications for high-redshift studies,
MNRAS, 444, 268.
61. Atek, Hakim et al., 2014.
Probing the $z > 6$ Universe with the First Hubble Frontier Fields Cluster A2744,
ApJ, 786, 60.
62. Jauzac, Mathilde et al., 2014.
Hubble Frontier Fields: a high-precision strong-lensing analysis of galaxy cluster MACSJ0416.1-2403 using 200 multiple images,
MNRAS, 443, 1549.
63. Treister, E.; Schawinski, K.; Volonteri, M.; Natarajan, P, 2013.
New Observational Constraints on the Growth of the First Supermassive Black Holes,
ApJ, 778, 130.
64. Atek, Hakim et al., 2013.
Probing the $z > 6$ Universe with the first Hubble Frontier Fields cluster Abell 2744,
ApJ, 786, 60.
65. Treu, T. et al., 2013.
Dark energy with gravitational lens time delays,
White paper submitted to SNOWMASS2013, preprint arXiv1306.1272T.
66. Agarwal, Bhaskar; Davis, Andrew; Khochfar, Sadegh; Natarajan, Priyamvada & Dunlop, James, 2013.
Unravelling obese black holes in the first galaxies,
MNRAS, 432, 3438.
67. Natarajan, Priyamvada & Volonteri, Marta, 2012.
The mass function of black holes $1 < z < 4.5$ comparison of models with observations,
MNRAS, 422, 2051
68. Capelo, Pedro; Coppi, Paolo & Natarajan, Priyamvada, 2012.
The polytropic approximation and X-ray scaling relations: constraints on gas and dark matter profiles for galaxy groups and clusters,
MNRAS, 422, 686
69. Oguri, Masamune, et. al., 2012.
Combined strong and weak lensing analysis of 28 clusters from the Sloan Giant Arcs Survey,
MNRAS, 420, 3213
70. D'Aloisio, Anson & Natarajan, Priyamvada, 2012.
The Effects of Primordial Non-Gaussianity on Giant-Arc Statistics: A Scale Dependent Example,
published in proceedings of the 2011 Frank N. Bash New Horizons in Astronomy Symposium, arXiv:1202.0553.
71. Capelo, Pedro; Coppi, Paolo & Natarajan, Priyamvada, 2012.
The polytropic approximation and X-ray scaling relations: constraints on gas and dark matter profiles for galaxy groups and clusters,
MNRAS, 422, 686
72. Oguri, Masamune, et. al., 2012.
Combined strong and weak lensing analysis of 28 clusters from the Sloan Giant Arcs Survey,
MNRAS, 420, 3213

73. Tanvir, Nial et al., 2012.
Star formation in the early universe: beyond the tip of the iceberg, *submitted to ApJ*, 754, 46.
74. Kneib, Jean-Paul & Natarajan, Priyamvada, 2011.
Cluster-lenses,
A&ARv, 19, 47.
75. Schawinski, Kevin et al., 2011.
Evidence for three accreting black holes in a galaxy at $z \sim 1.35$: A Snapshot of recently formed black hole seeds?,
ApJ, 743, L37.
76. Natarajan, Priyamvada, 2011.
The mass assembly history of black holes in the Universe,
Invited Review, Proceedings of the XVth Congress of Philosophy & Foundations of Science published by American Institute of Physics, arXiv:1105.4902
77. Treister, Ezequiel; Schawinski, Kevin; Volonteri, Marta; Natarajan, Priyamvada & Gawiser, Eric., 2011.
Black hole growth in the early Universe is self-regulated and largely hidden from view,
Nature, 474, 356.
78. D'Aloisio, Anson & Natarajan, Priyamvada, 2011.
The effects of primordial non-Gaussianity on giant-arc statistics,
MNRAS, 415, 1913.
79. Natarajan, Priyamvada, 2011.
The formation and evolution of massive black hole seeds in the Universe,
BASI, 39, 145.
80. Volonteri, Marta; Natarajan, Priyamvada & Gultekin, Kayhan, 2011.
How important is the dark matter halo for black hole growth?
ApJ, 737, 50.
81. D'Aloisio, Anson & Natarajan, Priyamvada, 2011.
Cosmography with cluster strong lenses: the influence of substructure and line-of-sight halos,
MNRAS, 411, 1628.
82. Schawinski, Kevin; et al., 2010.
The Sudden Death Of The Nearest Quasar,
ApJ, 724, L30.
83. Davis, Andrew; D'Aloisio, Anson & Natarajan, Priyamvada, 2011.
Virialization of high redshift dark matter haloes,
MNRAS, 416, 242.
84. Natarajan, Priyamvada, 2010
Weak lensing constraints on dark matter haloes of early-type galaxies,
HiA, 15, 71.
85. Jullo, Eric; Natarajan, Priyamvada; et al., 2010.
Cosmological Constraints from Strong Gravitational Lensing in Clusters of Galaxies,
Science, 329, 924.
86. Treister, Ezequiel; Natarajan, Priyamvada et al., 2010.
Major Galaxy Mergers and the Growth of Supermassive Black Holes in Quasars,
Science, 328, 600.

87. Davis, Andrew & Natarajan, Priyamvada, 2010.
Spin and structural halo properties at high redshift in a Λ cold dark matter Universe,
MNRAS, *407*, 691.
88. Comerford, Julia; Moustakas, Leonidas & Natarajan, Priyamvada, 2010.
Observed Scaling Relations for Strong Lensing Clusters: Consequences for Cosmology and Cluster
Assembly,
ApJ, *715*, 162.
89. Capelo, Pedro; Coppi, Paolo & Natarajan, Priyamvada, 2010.
Hydrostatic equilibrium profiles for gas in elliptical galaxies,
MNRAS, *407*, 1148.
90. Volonteri, Marta & Natarajan, Priyamvada, 2009.
Journey to the $M_{BH} - \sigma$ relation: the fate of low-mass black holes,
in the Universe, *MNRAS*, *400*, 1911.
91. Gilmore, James & Natarajan, Priyamvada, 2009.
Cosmography with cluster strong lensing,
MNRAS, *396*, 354.
92. Oguri, M., et al., 2009.
Subaru Weak Lensing Measurements of Four Strong Lensing Clusters: Are Lensing Clusters
Over-Concentrated?,
ApJ, *699*, 1038.
93. Davis, Andrew & Natarajan, Priyamvada, 2009.
Angular momentum and clustering properties of early dark matter halos,
MNRAS, *393*, 1498.
94. D'Aloisio, Anson; Furlanetto, Steven & Natarajan, Priyamvada, 2009.
The abundance of lensing protoclusters,
MNRAS, *394*, 1469.
95. Natarajan, Priyamvada & Treister, Ezequiel, 2009.
Is there an upper limit to black hole masses?
MNRAS, *393*, 838.
96. Natarajan, Priyamvada, et al., 2009.
Survival of dark matter halos in the cluster Cl0024+16,
ApJ, *693*, 970.
97. Limousin, M; Sommer-Larsen, Jesper; Natarajan, Priyamvada & Milvang-Jensen, Bo, 2009
Probing the truncation of galaxy dark matter halos in high density environments from
hydro-dynamical N-body simulations,
ApJ, *696*, 1771.
98. Natarajan, Priyamvada; Croton, Darren & Bertone, Gianfranco, 2008.
Consequences of dark matter self-annihilation for galaxy formation,
MNRAS, *388*, 1652.
99. Natarajan, Priyamvada & HongSheng Zhao, 2008.
MOND plus neutrinos not enough for cluster lensing,
MNRAS, *389*, 250.
100. Wilson, G; et al., 2008.
An ultra-bright, dust-obscured, millimeter galaxy beyond the Bullet Cluster,
MNRAS, *390*, 1061.

101. Rines, Kenneth; Diaferio, Antonaldo & Natarajan, Priyamvada, 2008.
WMAP5 and the Cluster Mass Function,
ApJ, 679, L1.
102. Eliasdottir, A., et al., 2008.
Where is the matter in the merging cluster Abell 2218?,
preprint, arXiv:07105636.
103. Hennawi, Joseph; Gladders, Micheal; Oguri, Masamune; Dalal, Neal; Koester, Benjamin;
Natarajan, Priyamvada et al., 2008.
A New Survey for Giant Arcs,
AJ, 135, 664.
104. Volonteri, Marta; Lodato, Guiseppe & Natarajan, Priyamvada, 2008.
The evolution of massive black hole seeds,
MNRAS, 383, 1079.
105. Capelo, Pedro & Natarajan, Priyamvada, 2007.
How robust are the constraints on cosmology and galaxy evolution from the lens-redshift test?
NJPh, 9, 445.
106. Lodato, Guiseppe & Natarajan, Priyamvada, 2007.
The mass function of high redshift seed black holes,
MNRAS, 377, 64.
107. Rines, Kenneth; Diaferio, Antonaldo & Natarajan, Priyamvada, 2007.
The Virial Mass Function of nearby SDSS Galaxy Clusters,
ApJ, 657, 183.
108. Natarajan, Priyamvada; De Lucia, Gabriella & Springel, Volker, 2007.
Substructure in lensing Clusters and Simulations,
MNRAS, 376, 180.
109. Comerford, Julia & Natarajan, Priyamvada, 2007.
The observed concentration-mass relation for galaxy clusters,
MNRAS, 379, 190.
110. Moeller, Ole; Kitzbilcher, Manfred & Natarajan, Priyamvada, 2007.
Strong lensing statistics in large, $z < 0.2$ surveys: bias in the lens galaxy population,
MNRAS, 379, 1195.
111. Limousin, Marceau; Kneib, Jean-Paul; Bardeau, Stephane; Natarajan, Priyamvada; Czoske,
Oliver; Smail, Ian; Ebeling, Harald & Smith, Graham, 2007.
Truncation of Galaxy Dark Matter Halos in high density environments,
A&A, 461, 881.
112. Limousin, M; Richard, J; Jullo, E; Kneib, J-P; Fort, B; Soucail, G; Eliasdottir, A; Natarajan, P;
Ellis, R. S; Smail, I; et al., 2007.
Combining Strong and Weak gravitational lensing in Abell 1689,
ApJ, 668, 643.
113. Lodato, Guiseppe & Natarajan, Priyamvada, 2006.
Supermassive black hole formation during the assembly of pre-galactic discs,
MNRAS, 371, 1813.
114. Cobb, Bethany; Bailyn, Charles; van Dokkum, Pieter & Natarajan, Priyamvada, 2006.
Could GRB 060614 and its presumed host galaxy be a chance superposition?
ApJ, 651, L85.

115. Aazami, Amir & Natarajan, Priyamvada, 2006.
Substructure and the cusp and fold Relations, *MNRAS*, 372, 1692.
116. Benatov, Latchezar; Rines, Ken; Natarajan, Priyamvada et al., 2006.
Galaxy orbits and the Intracluster Gas Temperature in Clusters,
MNRAS, 370, 427.
117. Cobb, Bethany; Bailyn, Charles; van Dokkum, Pieter & Natarajan, Priyamvada, 2006.
SN 2006aj and the Nature of Low-Luminosity Gamma-Ray Bursts,
ApJ, 645, L113.
118. Jakobsson, Pal et al., 2006.
GRB 050814 at $z = 5.3$ and the Redshift Distribution of Swift GRBs,
AIPC, 838, 552.
119. Treister, Ezequiel et al., 2006.
Spitzer Number Counts of Active Galactic Nuclei in the GOODS Fields,
ApJ, 640, 603.
120. Jakobsson, Pal et al., 2006.
A mean redshift of 2.8 for Swift Gamma-Ray Bursts,
A&A, 447, 897.
121. Natarajan, Priyamvada et al., 2005.
The Redshift distribution of Gamma-Ray Bursts revisited,
MNRAS, 364, L8.
122. Armitage, Philip & Natarajan, Priyamvada, 2005.
Eccentricity of Supermassive Black Hole Binaries coalescing from gas rich mergers,
ApJ, 634, 921.
123. Limousin, Marceau; Kneib, Jean-Paul & Natarajan, Priyamvada, 2005.
Constraining the Mass Distribution of Galaxies using Galaxy-Galaxy Lensing in Clusters and in the Field,
MNRAS, 356, 309.
124. Natarajan, Priyamvada & Springel, Volker, 2004.
Abundance of Substructure in Clusters of Galaxies,
ApJ, 617, L13.
125. Barnard, Vicki et al., 2004.
SCUBA Observations of the Host Galaxies of Gamma-ray Bursts,
AIPC, 727, 508.
126. Tanvir, Nial et al., 2004.
The Sub-millimeter Properties of GRB Host Galaxies *MNRAS*, 352, 1073.
127. Quadri, Ryan; Moeller, Ole & Natarajan, Priyamvada, 2003.
Lensing effects of misaligned disks in Dark Matter Halos,
ApJ, 597, 659.
128. Jaunsen, Andreas et al., 2003.
An HST study of three very faint GRB Host Galaxies,
A&A, 402, 125.
129. Kneib, Jean-Paul et al., 2003.
HST Study of Cl0024+16: II. Measuring the Cluster Mass Distribution,
ApJ, 598, 804.

130. Treu, Tommaso et al., 2003.
A Wide-Field Space Telescope Study of the Cluster CL0024+16 at $z = 0.4$: I. Morphological distributions to 5 Mpc radius,
ApJ, 591, 53.
131. Barnard, Vicki et al., 2003.
SCUBA observations of the Host Galaxies of four dark Gamma-ray Bursts,
MNRAS, 338, 1.
132. Natarajan, Priyamvada; Kneib, Jean-Paul & Smail, Ian, 2002.
Evidence for Tidal Stripping of Dark Matter Halos in Massive Cluster Lenses,
ApJ, 580, L11.
133. Natarajan, Priyamvada; Loeb, Abraham; Kneib, Jean-Paul & Smail, Ian, 2002.
Constraints on the Collisional Nature of the Dark Matter from Gravitational Lensing in the Cluster A2218,
ApJ, 580, L17.
134. Hjorth, Jens et al., 2002.
The Afterglow and Complex Environment of the Optically Dim Burst GRB 980613,
ApJ, 576, 113.
135. Moller, Ole; Natarajan, Priyamvada; Kneib, Jean-Paul & Blain, Andrew, 2002.
Probing the Mass Distribution in Groups of Galaxies using Gravitational Lensing,
ApJ, 573, 562.
136. Schneider, Raffaella; Ferrara, Andrea; Natarajan, Priyamvada & Omukai, Kazuyuki, 2002.
First Stars, Very Massive Black Holes, and Metals,
ApJ, 571, 30.
137. Armitage, Philip & Natarajan, Priyamvada, 2002.
Accretion during the Merger of Supermassive Black Holes,
ApJ, 567, L9.
138. Goldberg, David & Natarajan, Priyamvada, 2002.
The Galaxy Octopole Moment as a Probe of Weak-Lensing Shear Fields,
ApJ, 564, 65.
139. Crittenden, Robert; Natarajan, Priyamvada; Pen, Ue-Li & Theuns, Tom, 2002.
Detecting Intrinsic alignments from non-zero curl modes in the distortion field,
ApJ, 568, 20.
140. Holland, S., et al., 2001.
The host galaxy and optical light curve of the gamma-ray burst GRB 980703,
A&A, 371, 52.
141. Crittenden, Robert; Natarajan, Priyamvada; Pen, Ue-Li & Theuns, Tom, 2001.
Spin induced Galaxy alignments and their Implications for Weak Lensing measurements,
ApJ, 559, 552.
142. Natarajan, Priyamvada; Crittenden, Robert; Pen, Ue-Li & Theuns, Tom, 2001.
Do Angular Momentum Induced Ellipticity Correlations Contaminate Weak Lensing Measurements?
PASP, 18, 198.
143. Natarajan, Priyamvada & Almaini, Omar, 2000.
Stellar contributors to the hard X-ray Background,
MNRAS, 318, L21.

144. Fynbo, Johann et al., 2000.
Hubble Space Telescope Space Telescope Imaging Spectrograph Imaging of the Host Galaxy of GRB 980425/SN 1998BW,
ApJ, 542, L89.
145. Natarajan, Priyamvada & Refregier, Alexandre, 2000.
Two-dimensional Galaxy-Galaxy Lensing: a direct measure of the flattening and alignment of light and mass in galaxies,
ApJ, 538, L113.
146. Blain, Andrew & Natarajan, Priyamvada, 2000.
Gamma-ray Bursts and the history of Star Formation,
MNRAS, 312, L35.
147. Natarajan, Priyamvada & Armitage, Philip, 1999.
Warped discs and the directional stability of jets in Active Galactic Nuclei,
MNRAS, 309, 961.
148. Armitage, Philip & Natarajan, Priyamvada, 1999.
The Blandford-Znajek mechanism and emission from isolated accreting black holes, *ApJ*, 523, L7.
149. Armitage, Philip & Natarajan, Priyamvada, 1999.
Lense-Thirring precession of Accretion Disks around Compact Objects,
ApJ, 525, 909.
150. Natarajan, Priyamvada, 1999.
Consequences of feedback from early supernovae for disk assembly,
ApJ, 105, L512.
151. Natarajan, Priyamvada & Pringle, James, 1998.
The alignment of disk and black hole spins in active galactic nuclei,
ApJ, 506, L97.
152. Haehnelt, Martin; Natarajan, Priyamvada & Rees, Martin, 1998.
High-redshift galaxies, their active nuclei and central black holes,
MNRAS, 300, 817.
153. Natarajan, Priyamvada & Sigurdsson, Steinn, 1998.
Sunyaev-Zeldovich decrements with no clusters?
MNRAS, 302, 288.
154. Natarajan, Priyamvada; Kneib, Jean-Paul; Smail, Ian & Ellis, Richard, 1998.
The Mass-to-Light Ratio of early-type Galaxies: Constraints from Gravitational Lensing in the Rich Cluster AC114,
ApJ, 499, 600.
155. Natarajan, Priyamvada; Sigurdsson, Steinn & Silk, Joseph, 1998.
Quasar outflows and the formation of dwarf galaxies,
MNRAS, 298, 577.
156. Wijers, Ralph; Bloom, Joshua; Bagla, Jasjeet & Natarajan, Priyamvada, 1998.
Gamma-ray bursts from stellar remnants: probing the Universe at high redshift,
MNRAS 294, L13.
157. Natarajan, Priyamvada & Pettini, Max, 1997.
Estimating the mass density in neutral gas at $z < 1$,
MNRAS, 291, L28.

158. Natarajan, Priyamvada et al., 1997.
The Host to Gamma-Ray Burst 970508: a Distant Dwarf Galaxy?
NEW ASTRONOMY, 2, 471.
159. Natarajan, Priyamvada & Kneib, Jean-Paul, 1997.
Lensing by galaxy halos in clusters of galaxies,
MNRAS, 287, 833.
160. Natarajan, Priyamvada; Hjorth, Jens & van Kampen, Eelco, 1996.
Distribution Functions for Clusters of Galaxies from N-body Simulations,
MNRAS, 286, 329.
161. Natarajan, Priyamvada & Lynden-Bell, Donald, 1996.
An analytic approximation to the Isothermal Sphere,
MNRAS, 286, 268.
162. Natarajan, Priyamvada & Kneib, Jean-Paul, 1996.
Probing the dynamics of Cluster-lenses,
MNRAS, 283, 1031.

INVITED REVIEWS

Early Black Holes (2021), in preparation for Physics Reports.

Cluster Lenses: Nature's Telescopes (2021), in preparation for Nature.

The First Black Holes (2017), appeared as cover article for Scientific American in February 2018.

The formation of the first black holes in the Universe (2013)
GR20/Amaldi 10 proceedings, published in Gravitation and Cosmology.

The formation and evolution of black hole seeds in the early Universe (2011)
Bulletin of the Astronomical Society of India, Chandra Centennial Volume, arXiv:1104.4797

Cluster lenses (2011)
The Astronomy & Astrophysics Review, Volume 9, 47, Springer.

The mass assembly history of black holes in the Universe (2011)
American Institute of Physics, Proceedings of the Congress of Philosophy and Foundations of Science XV - International Program 'Frontier Areas of Research Excellence'

Modeling the accretion history of supermassive black holes (2004)
In: *Supermassive Black Holes in the Distant Universe*, ed. A. J. Barger, Kluwer Academic Publishers.

BOOKS

Natarajan, Priyamvada (2022)
Manuscript in Progress,
Penguin Random House, to be published 2024.

Natarajan, Priyamvada (2016)
Mapping the Heavens: radical ideas that reveal the cosmos,
Yale University Press, published Summer 2016.

Natarajan, Priyamvada (2002)

Editor: *The Shapes of galaxies and their dark matter halos*,
Proceedings of the Yale Cosmology Workshop, World Scientific.

RECENT OTHER PUBLICATIONS

Essay for New York Review of Books titled *In Search of Planet X*, published in October 2019; and essay titled *What's the matter with matter*, (2021), in press.

Catalog Essay for Antony Gormley Retrospective at the Royal Academy of Art, London, U.K. published in September 2019.

Opinion piece titled *At Long Last, a Glimpse of a Black Hole* in the New York Times, published on April 9, 2019.

Book reviews in the Wall Street Journal June 2018; December 2018 and May 2019.

Invited cover article for Scientific American February 2018, *The Puzzle of the First Black Holes*, republished in Special Issue title *Extreme Physics* in April 2019.

Invited pieces for Nautilus Magazine & Discover Magazine.

Invited Book Essays in the New York Review of Books titled *What Scientists Really Do; Revelation from Outer Space; Einstein at 100; Calculating Women* and *Exploration of Near & Far Worlds*.

Invited blog pieces for the New York Review Blog and Yale Press Blog.

Invited submission to journal India in Transition on Transforming India into a knowledge power.

Five Opinion Editorial pieces in the Hindustan Times published in New Delhi (newspaper with the largest circulation in India); Three pieces published in Huffington Post; one in the Washington Post weekend Outlook section and one in CNN - all pieces are themed on science and math education and research.

Monthly column on astronomy at the popular level in the newspaper Asian Age (2005 - 2008).

Rees, Martin & Natarajan, Priyamvada (2003), *The Dark Universe* - a commissioned popular article for DISCOVER magazine (December 2003 issue).

Natarajan, Priyamvada (1998), *The Universe through Gravity's Lens* - a popular level review article on Gravitational Lensing in The Icon Critical Dictionary of the New Cosmology, ed. Peter Coles, Icon Books Ltd., U.K.

Natarajan, Priyamvada & Lahav, Ofer (1996), Synopsis of the Cosmology Session at the National Astronomy Meeting, Liverpool, U.K. : Testing cosmological models, *The Observatory*, Vol. 116, No. 1135, 335.

Creative writing - poetry and fiction - first collection of poems titled *784 Main Street Collection* published by WishWomen (Vol. 1, Issue 6) a women's poetry review magazine in August 1996.

SELECTED INVITED COLLOQUIA & CONFERENCE/WORKSHOP TALKS (2014 - 2021)

2021: Invited Plenary talk 237th Annual American Astronomical Society meeting; Invited Distinguished Faculty colloquium, Chinese University of Hong Kong; Invited speaker at the MIT Unfolding Intelligence Conference; Invited speaker at the Aspen Winter conference *Rainbow of Dark Sectors*; Invited Panelist and Moderator at the Next-Generation Event Horizon Telescope (ngEHT) conference; Distinguished Visitor Colloquium, Department of Physics, IIT-Madras, India; Invited Colloquium, Department of Astronomy, Leiden, The Netherlands; Invited Speaker IAU Meeting on TDEs; Invited Speaker Golden Webinar Series, Chile; Invited Speaker, Annual Mexican Physical Society meeting.

2020: Invited colloquia at: Princeton Plasma Physics Laboratory at Princeton; Institute for Theory & Computation at Harvard University; and the Kavli Institute for Particle Astrophysics at Stanford University; invited topical technical seminars at the Institute for Advanced Study (Princeton) and at the Department of Physics & Astronomy at University of Texas at Austin; Invited lecture series on Dark Matter at the Yale-China Center; Invited Colloquium at the Ogden Center for Computational Astrophysics, University of Durham, U.K.

2019: Invited Keynote talk at the USRA Space Astrophysics Landscape for the 2020s & Beyond: The Future of Space Astrophysics, Potomac, Maryland; MIT-India Conference, MIT, Cambridge; The Hubble Constant Controversy: Status, Implications and Solutions, Heidelberg, Germany; Colloquia at UBC, Vancouver & University of Victoria, Canada; Beyond Stephen Hawking's Legacy, Jerusalem, Israel; Invited review at New Directions in Theoretical Physics 3, Edinburgh, U.K.; Invited talk at the Tal Alexander Workshop, Jerusalem, Israel; Invited talk at annual Black Hole Initiative Conference, Harvard University, Cambridge; Invited talk at 20 years of Chandra conference; Astrophysics Colloquium at M.I.T.; Invited Talk at CoSyne: Cosmological Synergies in the next decade conference, Paris, France; Invited Colloquium at St. Mary's University, Canada; Invited Colloquium at the Institute for Astronomy, University of Hawaii; Invited Spring Colloquium DIPC, Spain.

2018: Invited talks at MIT Alumna Conference; Department of Physics, San Angelo, TX; Institute of Astronomy Colloquium, Cambridge, UK; NYU Colloquium; Simons Center Flatiron Institute Colloquium and Simons Center Public Talk and Colloquium at CITA, Toronto, Canada.

2017: Invited talks at the Black Hole Initiative Conference, Harvard, MA; Elusive AGN conference, George Mason University, VA; Yale Alumni Reunions, New Haven, CT; Radcliffe Institute for Advanced Study, Cambridge, MA; KITP Program on the galaxy-halo connection, Santa Barbara, CA; Cosmic Dawn: Spectral Diagnostics with JWST, Baltimore, MD; Titans of the Universe Workshop at Prato, Italy; Invited talk at the Harvard Black Hole Initiative Center Conference, Cambridge, MA; Invited talk at the conference on Elusive AGN, George Mason University, VA; Invited talk at the KITP Conference on the Galaxy-Halo Connection, Santa Barbara, CA.

2016: Invited colloquium at Smith College, Northampton; Invited talk at the Annual American Astronomical Society meeting, Florida on Detecting the first black holes with JWST; Invited talk at the Inauguration of the Harvard Black Hole Initiative Center; Invited talk at First Stars V Conference in Heidelberg, Germany; Invited talk at the IAU Symposium 324 on New Directions in Black Hole Physics, Slovenia.

2015: Invited colloquia at Institute for Theory & Computation, Harvard University; Invited speaker at conference *Unveiling the Galaxy-Black Hole Connection* in Patagonia; at the Frontier Fields Workshop in Sesto Pusteria; South by High-Redshift Conference in Austin, Texas. Invited talk at Science with the X-ray Surveyor workshop in Washington D.C.; Invited speaker at AAAS session on *Building Galaxies: Some Assembly Required*.

2014: Invited colloquia at Darmouth and the University of Arizona; Invited lectures at the Cosmology Winter School in Durban, South Africa (January); Invited Review talk at the Science with the Hubble Space Telescope: Looking to the Future Conference, Rome (March); Invited talk at the Hyper-Accretion workshop held at Kavli IPMU in Tokyo, Japan (March); Invited review talk on the first black holes at the Higgs Center Conference on The Physics of first star and galaxy formation (May); Invited talk at the HEAD meeting in Chicago (August); Invited talk at the annual meeting of

the Swiss National Science Foundation in Bern, Switzerland (October) and at the Tallberg Forum at CERN, Geneva, Switzerland (October);

RECENT POST-DOC, STUDENT ADVISING & MENTORING

Current & Recent Postdocs: Michael Tremmel (current); mentoring of recent post-docs: Fabio Pacucci currently at Harvard; YCAA Prize Fellows Nico Cappelluti (faculty at University of Miami); Mentored Benny Trakhtenbrot (current faculty at Weizmann Institute, Israel) and Bhaskar Agarwal.

Recent Research Project Students: Urmila Chadayammuri, Yotam Cohen, Darryl Seligman, Lamiya Mowla, Ryan Blackman, Tomomi Sugiyama; Undergraduates: Evan Linck, Jason Parisi, Alex Thomas, Luis Fernando Machado, Michelle Lapadula.

Recent Undergraduate Senior Thesis Supervision: Evan Linck and Jason Parisi.

Recent Mentoring Activities as DUS: Scheduled regular mentoring meetings with all undergraduate majors and prospective majors; help with summer research placements for all URM students and international students.

Yale PhD Students: Angelo Ricarte (2019); Pedro Capelo (2012); Anson D'Aloisio & Andrew Davis (2011); International PhD students (co-advised): Ardis Eliasdottir (2009) at the University of Copenhagen; Marceau Limousin (2007) at the University of Toulouse.

Yale Dissertation Committees: Kaustav Mitra (Astronomy), Han Aung (Physics); Lamiya Mowla (Astronomy); Shany Danieli (Physics); Uddipan Banik (Astronomy); Urmila Chadayammuri (Astronomy); Tonima Ananna (Physics); Meredith Powell (Physics); Fangzhou Jiang (Astronomy); Lucy Tvrznika (Physics); Meredith Powell (Physics); Erica Nelson (Astronomy); Tomomi Sugiyama (Physics); Camille Avestruz (Physics); Louis Kastens (Physics).

Recent External Dissertation Evaluation Committees: Ashish Meena (IISER, Mohali, India), Soniya Sharma (ANU, Australia), David Fiacconi (University of Zurich, Switzerland), Edwidge Pezzulli (INFN, La Sapienza, Rome, Italy).

Mentoring women in Astronomy: Aside from informal mentoring of several of the women graduate students and several post-doctoral associates currently in the department, I also actively mentor Dr. Erica Nelson (faculty University of Colorado, Boulder); Dr. Mathilde Jauzac (UKRI prize fellow at Durham University); Dr. Laura Blecha (faculty at the University of Florida); Dr. Julie Comerford (faculty at the University of Colorado at Boulder; serve as official moentor for Chiara Mingarelli (Univ. of Connecticut & CCA, Flatiron Institute).

Undergraduate Project Students: Evan Linck (senior in Physics), Ben Horowitz (Senior, Yale College, currently graduate student at UC Berkeley) worked on Flexion; Ashvin Srivatsa (Senior, Yale College) worked on merger driven galaxy formation, Raghavendra Srinivas (Junior, NUS, visiting student at Yale) working on early black holes; Naomi Lisan (Yale Graduate, WFF research project); Shannon Hill (Divinity School Graduate, WFF research project); Recent Undergraduate advisees: Aobo Guo and Akhil Sud.

Previous research group members (Post-doctoral fellows): David Goldberg (Octopole moments of the shear), Associate Professor at Drexel University, PA; Nick Morgan (Lens redshift test), teaching high-school science at the Staples School, Westport, CT; Ken Rines (Galaxy orbits in clusters and cluster mass functions), Associate Professor at Washington State University.

Previous research group members (Graduate Project Students): Amir Aazami (Substructure and the cusp and fold relations); Anne Abramson (Dwarf galaxies); Latchezar Benatov (Galaxy orbits in clusters); Pedro Capelo (Limitations of the lens-redshift test); Carie Cardamone (Differential

Magnification of AGN); Juan Cortes (Consequences of overlapping halos); Camille Avestruz (AGN Feedback); Andrew Davis (Mass reconstruction of clusters); Andres Escala (Combining Lensing, X-ray and S-Z data); James Gilmore (Cluster strong lensing and dark energy); Kwang-Ho Park (Orbital structure of clusters); Ryan Quadri (Lensing by misaligned halos); Katherine Whitaker (Early-type galaxies in Abell 2218).

Previous members (Undergraduate Project Students): Badr Albanna (Redshift distribution of gamma-ray bursts); Peter Aronoff (Properties of the ICM); Taryn Flock (Flexion in clusters); Emily Neubauer (HI content of Virgo spirals); Sue Lin (Cascading Numerical Illiteracy in America); Liyun Jin (Ancient Cosmogonies); Glen Meyerowitz.

SELECTED COMMITTEE WORK AT YALE

2017 – present: Tenure Committee, Department of Physics.

2015 – present: Yale Astronomy Summer Student Research Program Faculty Advisory Board.

2014 – 2017: Chair, Yale College Science Council.

2014 –2017; 2019: Director of Undergraduate Studies, Department of Astronomy.

2013 – present: Member, Steering Committee of the Women’s Faculty Forum.

2013: Member, Presidential Search Committee and the Presidential Inaugural Committee.

2012 – 2013: Member, President’s Minority Advisory Council (MAC) and Provost’s Committee on Diversity.

2012 – 2013: Member, Graduate Program review committee, Departments of Astronomy & Physics.

2011 – June 2012: Director of Graduate Studies (Admissions), Department of Astronomy.

2011 – 2013: Chair, Women’s Faculty Forum.

2011 – 2013: Member, Yale WFF Public Voices and Thought Leadership Project.

2010 – 2020: Member, Publications Committee, Yale University Press.

2009 – 2018: Member, Yale College Science Council; Henry Fellowship selection committee.

2008 - 2010: Co-Chair, WFF Working Group on Sexual Misconduct.

2007 – present: Member, Terry Lectureship Committee.

2007 – 2008: Member, Yale College Executive Committee.

2005 – 2008: Director of Graduate Studies, Department of Astronomy.

2005 – 2009: Steering Committee member of the Women’s Faculty Forum.

2012 – 2019: Astronomy Department Colloquium Organizer (2003-2005), Co-Organizer (2005-2008, 2012-2015); Co-organizer of the weekly Astronomy & Astrophysics Department colloquium (2017-2019).

2003 – present: Member, South Asia Studies Council, The MacMillan Center; Member, Advisory Board, Yale Scientific Magazine.

2003 – 2006: Member of Astrophysics faculty search committee, Physics Department.

SCIENCE & ART COLLABORATIONS

Collaboration with Yale School of Architecture faculty Joyce Hsiang & Bimal Mendis on installation titled *The World Turned Inside Out* that will be on display at the 59th Venice Biennale, 2021.

Invited conversant with Anselm Kiefer on workshop titled *Superstrings, Runes, Norms, Gordian Knot* at the White Cube Gallery, London, U.K. in January 2020.

Collaboration with the Turner Prize winning sculptor Sir Antony Gormley to produce an AR-VR experience titled LUNATICK a journey that provides the haptic experience of space. Developed with Acute Art U.K. launched in April 2019 and invited to show at the 58th Venice Biennale, 2019 at the Phi Immersive Theater, Venice, Italy.

Invited essay for catalog of the Antony Gormley Retrospective held at the Royal Academy, London September - December 2019.

Collaboration with artist Alyson Shotz, conversation about infinity which led to the piece titled Triple Infinity that was part of the exhibition ART AND SPACE exhibited at the Guggenheim Museum, Bilbao, Spain in 2017.

INVITED PUBLIC TALKS, PRESS RELEASES, MEDIA & PANELS (2014-2021)

2021: Invited Public Talk at the Perimeter Institute, Waterloo, Canada; interviewed for the Vox podcast Unexplained; Interviewed by CBC Ideas Program; Invited moderator at the Jaipur Literary Festival and Interviewed for James Ryerson's New York Times Line Edit podcast; Invited speaker at the Indian Science Festival.

2020: Yale OPA press release titled *Holding up a mirror to a dark matter discrepancy & NASA ESA Press-release on Science paper covered widely in Nature magazine and the popular press worldwide including features in Scientific American, Discover, National Geographic, Gizmodo, ScienceNews and many international newspapers; Interviewed for the BBC documentary on the 30th Anniversary of the Hubble Space Telescope; Interviewed on an NPR podcast Shortwave on Black Holes; talk featured on CBC Ideas broadcast in May 2020; Yale OPA press release titled *Under pressure, black holes feast on research group's work on Jellyfish Galaxies; work on IMBHs covered in Quanta Magazine and Sky & Telescope; Invited on the following podcasts: Science Rules! With Bill Nye the Science Guy; World Science Festival 2020: Conversation with Brian Greene; Invited speaker on BYU radio; Interviewed on NPR Science Friday and All Things Considered, NPR Short Wave. Invited Speaker at Jaipur Literary Festival; The Secret Science Club; Westport Astronomical Society.**

2019: Interviewed on Star Talk; profiled in Wonders of the Universe Series; invited talks and panels at the Jaipur Literature Festival in Jaipur, Houston and New York; Invited talk at the Center for Contemporary Culture (CCCB) in Barcelona, Spain; Invited talk at the Jerusalem Conference on the Future of Knowledge Creation in the Sciences; Invited plenary talk at the MIT-India Conference; Invited talk at the New York Map Society; Keynote at the Council of World Affairs conference; Research work featured twice in the New York Times, profiled in The Atlantic, El Pais, Mujer Hoy, Gizmodo, New Scientist; Invited to speak on NPR Science Friday and WHSU; published an Op-Ed in the New York Times and essay in The New York Review of Books; Essay published in the Royal Academy of Art Antony Gormley Retrospective Catalogue; Two Yale OPA press releases on scientific results titled *Growing old together: a sharper look at black holes and their host galaxies & A Yale Astrophysicist's prediction comes to pass - 20 years later* (one in the Top 10 viewed stories of the year); YaleNews article on inter-disciplinary project *Lunatick*.

2018: Interviewed and profiled by Quartz Magazine for their Visionaries Series; profile & interview published in Quanta Magazine; NBC Mach; and The Atlantic; on Inaugural Jury of the JCB Prize for Literature; Invited speaker at Google Sci-Foo.

2017: Yale OPA press release titled *Yale-led team puts dark matter on the map*; Frequent expert commentator for BBC, NBC, CNN, Quartz, The Atlantic, Nautilus, WIRED, Quanta, and New Scientist on astronomy and astrophysics; Profiled in PBS NOVA documentaries - Black Hole Apocalypse & Dark Matter; Invited Wali Lecture at Syracuse University, Syracuse, NY; Interview and Profile on NPR's Where We Live in the series Making Her Way.

2016: Invited talk at the American Museum of Natural History Frontiers of Science Series, New York; Invited talk at the World Science Festival, Brisbane, Australia; Invited Master class at the World Science Festival, New York on Black Holes; Invited New Scientist Expert Lecture Series on Dark Matter, Boston; Invited Book & Research Talk at the Aspen Ideas Festival; Miami Book Festival; Texas Book Festival; Long Now Foundation; Decatur Book Festival; Wisconsin Book Festival; Times of India Literary Festival; Google; Seattle Town Hall; Skeptics Society; Featured Guest on Wisconsin Public Radio; Philosophy Talk Radio (Stanford); and several nationally syndicated Radio Shows on Science and Science News; Invited Yale representative at NASA 2016 STEM SUMMIT, Washington D.C.; Invited guest on NPR Science Friday two times to speak on Black Holes and Dark Matter; Invited guest on NOVA PRI Frontier of Science Program; Featured speaker in PBS Planetarium Show titled the Stories of Stars; Featured speaker in documentaries filmed by NOVA and by Peter Galison (Harvard) on Black Holes.

2015: Organizer of the public White House Astronomy Night satellite event at Yale in October 2015; Invited talk at INK2015, The Indian Knowledge Festival, Mumbai, India; Invited Panelist at the World Science Festival in 2 events: *Dark Energy: Measuring a Mystery* and *To Infinity and Beyond: The Accelerating Universe*; Invited speaker at MIT Catalyst Collective pre-show talks at the Central Square Theater; Invited speaker on NPR's On Point with Tom Ashbrook and Here and Now with John Dankowsky; Invited speaker at Cambridge Science Festival on panel *Celebrating Einstein*; Invited speaker at the Story Collider May Cambridge event; Invited CNS Lecture at University of Massachusetts at Amherst titled *Gender Matters* on Women in Science; Invited speaker at the Indiaspora Forum, Airlie Center, Virginia; Invited Lecturer at the Warrior-Scholar National Project Summer Program.

2014: Invited talk at Secret Science Club, New York; Invited talk at the MIT Alumni Reunion; Panelist at Kavli Frontiers of Science Roundtable on Dark Matter & Dark Energy; Yale OPA Press release titled *How do you feed a hungry quasar? with a super-boost*; Invited member, Helix Center for Inter-disciplinary Enquiry, panel on Limits of Knowledge, New York; Invited talk at the Center for Inquiry Conference *The Cutting Edge: Science in the 21st Century and Beyond*, Cleveland, Ohio; Invited panelist on *Future of Liberal Arts & Science Education* Conference, Bangalore, India.

2013: Invited member, Helix Center for Inter-disciplinary Enquiry, panel on Women in Science, New York; Kavli Frontiers of Science Roundtable on Black Holes; Invited Public talk to donors at Kavli Institute for Theoretical Physics, Santa Barbara.

2012: Invited speaker at inaugural Yale TEDx; Invited speaker on several programs on NPR, KZUM and Virgin Radio (UK); Featured in Japanese TV NHK documentary on The Enigma of Black Holes; Moderated Young Global Fellows (World Economic Forum, Davos, Switzerland) panel on *How to nurture women leaders*; featured in the following Yale Office of Public Affairs articles: On navigating career pressure points for women faculty, Progress of women faculty in academia, How to foster more women leaders; Interviewed on the MacMillan Report discussing Gender Parity in Academia.