

Sukanya Chakrabarti

Pei-Ling Chan Endowed Chair and Professor
School of Physics and Astronomy
University of Alabama, Huntsville
Huntsville, Alabama 35899

SELECTED HONORS

Margaret Burbidge Visiting Professorship at UCSD, 2025
Plenary lecture at the APS CU*IP conference, 2025
Keynote lecture for AAVSO's 113th Annual Meeting, 2024
Vera Rubin Distinguished Lectureship at UCSC, 2024
Plenary lecture at the 243rd American Astronomical Society conference, 2024
Anna Mani Lectureship, 2023
IBM Einstein Fellow at Institute for Advanced Study, Princeton, 2020
Scialog Fellow for Time-Domain Astrophysics (RCSA), 2019
University of CA Presidential Fellowship held at UC Berkeley (January 2009-2011)
Institute for Theory and Computation Fellowship at Harvard (October 2008- January 2009)
National Science Foundation Postdoctoral Fellowship held at Harvard (2006-2008)

EXTERNAL GRANTS AWARDED AS PI

NASA EPSCoR CAN, "Testing the functionality and performance of a large area detector for STROBE-X", 09/01/2024 - 08/31/2027, \$750,000

STSCI, "Constraining dark matter near the Galactic plane with precisely timed eclipsing binary stars", 01/01/2024-12/31/2025, \$113,304, Cycle 31, GO 17505.

NSF AAG Collaborative Research: Beyond Gaia: Expanding the Dynamical Map of the Milky Way with Asteroseismic Distances", NSF AST 2009828, Co-PI Sukanya Chakrabarti, with Co-PIs Dan Huber and Robyn Sanderson, 08/15/2020 - 07/31/2023, \$693,000.00

RCSA Scialog Time Domain Astrophysics Program, **Principal Investigator** (with Co-PIs Robyn Sanderson and Dan Huber), "Beyond Gaia: Expanding The Dynamical Map Of The Milky Way With Asteroseismic Distances", 7/1/2019 - 7/1/2021 (with NCE), \$165,000.

NASA Astrophysics Theory Program, **Principal Investigator**, "Galactoseismology: From The Milky Way to XUV Disks", 5/1/2017-5/1/2021 (with NCE), \$186,000.

NRAO, **Principal Investigator**, "Towards A New Probe of Dark Matter: HI Masses of Strong Spiral Lenses", 08/01/2016 - 07/31/2017, \$24,353.00.

NSF AAG , **Principal Investigator**, "The Dynamical Echoes of Dark Matter Sub-Structure: In Simulations + In Spirals Out To $z \sim 0.1$ ", 08/01/2015 - 07/31/2019, \$325,053.00 [with NCE till 07/31/2019 due to maternity leave in 2017]

NRAO, **Principal Investigator**, "A New Probe of Dark Matter in Spiral Galaxies", \$22,000, January 2013 - January 2014.

RESEARCH INTERESTS & SUMMARY

Galactic dynamics; radiation transport; time-domain and multi-messenger astronomy; machine learning. My current research is focused on developing techniques for precision measurements of dark matter. We are adapting techniques from the exoplanet community (extreme-precision radial velocity observations), pulsar timing, and of eclipsing binary stars, to develop *time-series precision measurements* of the accelerations of stars, which gives the most direct probe of the mass distributions in galaxies. These recent measurements now enable the new, highly interdisciplinary field of “real-time” Galactic dynamics that brings together the exoplanet community, researchers in compact objects and eclipsing binaries, and in traditional Galactic dynamics.

GRANTS FOR DIVERSITY, EQUITY & INCLUSION

Principal Investigator, AAS Board, demographics survey for Committee for Status of Women in Astronomy (CSWA), \$2500, Fall 2021.

Women In Science Distinguished Speaker Series", with Co PIs Leslie Kate Wright, Lea Michel, 15/06/2016, \$6800, ADVANCE NSF Connect Grants.

STUDENT & POSTDOC MENTORING

Undergraduates: I supervised undergraduate Capstone student Nelson Silva on his Capstone thesis (2013-2014). I supervised undergraduate co-op student Brennan Dell from January 2018 - July 2018, and REU student Sandy Spicer from Siena College as part of the [NSF REU Multimessenger Astrophysics program at RIT](#) in Summer 2018. I also worked with undergraduate Alex Pompo (2017-2018). I supervised undergraduate Capstone student Baizar Alamiri on her Capstone thesis (2018-2019), Honors student Joey Territo (Summer 2020), and as part of our [NSF collaborative](#) award, I supervised undergraduate REU student Tets Nagashima (Summer 2021), Luke Benavitz (Summer 2022), and undergraduate REU student Aidan Chun (Summer 2023). At UAH, I supervised undergraduate Capstone students Maci Parinello (Fall 2022), Jonathan Jernigan (Spring 2023), Caleb Wales, Tyler VanAlstine, Sophia Vanderwaal, and ALSAMP student Kylon Taylor (2024).

Graduate students: I supervised Ph.d. student Andrew Lipnicky (01/08/2013 - 01/08/2017) and he successfully defended his thesis in June 2017. He is currently employed as a data analyst at the National Radio Astronomical Observatory. I have also supervised graduate (M.S.) student Tanmayee Gupte (Fall 2016). I supervised Ph.d. student Peter Craig on his thesis (Summer 2018 - 2023), he will begin a postdoctoral position at Michigan State (Fall 2023). I have begun to supervise three new UAH graduate students (Jack Wagner, Lorenzo Addy, Raj Pradhan).

Postdocs: Postdoctoral associate Dr. Christopher Purcell (2015-2016) worked with me on projects on near-field cosmology, and Dr. Benjamin Lewis (2017-2019) worked with me on galaxy formation simulations. Dr. Tom Donlon will begin working with me in August 2023 on Galactic acceleration measurements.

Total Undergraduate Students: 15 (undergraduate student papers denoted as **)

Total Graduate Students: 6 (graduate student papers denoted as ##)

Total Postdocs: 3

PUBLICATIONS

Donlon, Tom, **Chakrabarti, Sukanya**, Widrow, Larry, et al., 2024, *Empirical Modeling of Magnetic Braking in Millisecond Pulsars to Measure the Local Dark Matter Density and Vertical Acceleration Profile*, submitted to PRD

Craig, Peter, O'Connor, Kyle, **Chakrabarti, Sukanya**, Rodney, Steven, et al., *A targeted search for strongly lensed supernovae with the Las Cumbres Observatory*, 2024, accepted to MNRAS, arXiv:2111.01680 [[Part of P. Craig's Ph.d. Thesis](#)] ##

Donlon, Thomas, **Chakrabarti, Sukanya**, Lam, Michael, et al., 2024, *"The Anomalous Acceleration of PSR J2043+1711: Long-Period Orbital Companion or Stellar Flyby?"*, submitted to AAS Journals

Arora, Arpit, Sanderson, Robyn, **Chakrabarti, Sukanya**, et al., *"The imprint of dark matter on the Galactic acceleration field"*, 2024, accepted to AAS Journals, arXiv: 2406.12957

Pierel, J.D.R., Newman, A.B., Dhawan, S, + **Chakrabarti, Sukanya**, et al., 2024, *Lensed Type Ia Supernova "Encore" at $z = 2$: The First Instance of Two Multiply-Imaged Supernovae in the Same Host Galaxy*, ApJ Letters, Volume 967, Issue 2, id.L37,

El-Badry, Kareem, Simon, Joshua, Reggiani, Henrique, + **Chakrabarti, Sukanya**, et al., 2024, *A 1.9 solar mass neutron star candidate in a 2-year orbit*, accepted to OJAp, arXiv:2402.06722

Donlon, Tom, **Chakrabarti, Sukanya**, Lam, Michael, Chang, Philip & Quillen, Alice, 2024, *Galactic Structure From Binary Pulsar Accelerations: Beyond Smooth Models*, accepted to PhysRev D, arXiv:2401.15808

Pierel, J.D.R., Frye, B.L., Pascale, M., +**Chakrabarti, S.**, et al., 2024, *JWST Photometric Time-Delay and Magnification Measurements for the Triply-Imaged Type Ia "Supernova H0pe" at $z=1.78$* , accepted to AAS Journals

Craig, Peter, **Chakrabarti, Sukanya**, Pettitt, Alex, et al., 2024, *A map of the outer gas disk of the Galaxy with direct distances from young stars*, submitted to ApJ Letters

Lam, Casey, Abrams, Natasha, Andrews, Jeff, + **Chakrabarti, Sukanya**, 2023, *Snowmass White Paper: Characterizing the Galactic population of isolated black holes*, arXiv:2306.12514

Daniel R. Hey, Daniel Huber, Benjamin J. Shappee, Joss Bland-Hawthorn, Thor Tepper-García, Robyn Sanderson, **Chakrabarti, Sukanya**, et al., *The far side of the Galactic bulge revealed through semi-regular variables*, 2023, AJ, 166, 249H

Baptista, J., Sanderson, R., Huber, D., Wetzel, A., + **Chakrabarti, S.**, *Orientations of DM Halos in FIRE-2 Milky Way-mass Galaxies*, 2023, ApJ, 958, 44B

Pierel, J.D., Arendse, N., Ertl, S., Huang, X., Moustakas, L., + **Chakrabarti, S.**, *LensWatch: I. Resolved HST Observations and Constraints on the Strongly-Lensed Type Ia Supernova 2022qmx ("SN Zwicky")*, 2023, ApJ, 948, 115P

Romanowsky, A., Larsen, S., Villaume, A., Carlin, J., Jan, J., Sand, D., Strader, J., Brodie, **Chakrabarti, Sukanya.**, et al., 2023, *A young faint fuzzy star cluster around the low-mass spiral galaxy NGC 247*, MNRAS, 518, 316R

Craig, Peter, **Chakrabarti, Sukanya**, et al., *Building an acceleration ladder with tidal streams and pulsar timing*, 2023, ApJ Letters, 945L, 32C [[Part of P. Craig's Ph.d. Thesis](#)]

Chakrabarti, Sukanya, Simon, Josh, Craig, Peter, et al., *A non-interacting Galactic black hole candidate in a binary system with a main-sequence star*, Astronomical Journal, 2023, 166, 6C

Bechtol, Keith, Birrer, Simon, Cyr-Racine, Francis-Yan et al. + **Chakrabarti, Sukanya**, 2022, *Snowmass2021 Cosmic Frontier White Paper: Dark Matter Physics from Halo Measurements*, arXiv: 2203.07354

Chakrabarti, Sukanya, Drlica-Wagner, Alex, Li, Ting, Sehgal, Neelima, et al., 2022, *Snowmass2021 Cosmic Frontier White Paper: Observational Facilities to Study Dark Matter*, arXiv: 2203.06200

Chakrabarti, Sukanya, Gonzalez, Anthony, Eikenberry, Steve, Erskine, David, et al., 2022, *Real-time Cosmology with High Precision Spectroscopy and Astrometry*, Snowmass white paper, arXiv: 2203.05924

Chakrabarti, Sukanya, Stevens, Daniel, Wright, Jason, Rafikov, R., et al., *Eclipse timing the Milky Way's gravitational potential*, 2022, ApJ Letters, 928L, 17C

Chakrabarti, Sukanya, Chang, Philip, Lam, Michael, Vigeland, Sarah, Quillen, Alice, 2021, *A measurement of the Galactic plane mass density from binary pulsar accelerations*, ApJ Letters, 907L, 26C [[Featured in AAS 2021 press conference](#)]

Craig, Peter, **Chakrabarti, Sukanya**, Baum, Stefi, Lewis, Benjamin, 2022, *A dynamical mass estimate from the Magellanic Stream*, MNRAS, 517, 1737C [[Part of P. Craig's Ph.d. Thesis](#)] ##

Craig, Peter, **Chakrabarti, Sukanya**, Newberg, Heidi & Quillen, Alice, 2021, “*Dynamically produced moving groups in interacting simulations*”, MNRAS, 505, 2561C [[Part of P. Craig's Ph.d. Thesis](#)] ##

Chakrabarti, Sukanya, Wright Jason, Chang Philip, Quillen, Alice, Craig, Peter, Territo, Joey, et al., 2020, *Towards a direct measure of the Galactic acceleration*, ApJ Letters, 902L, 28C *** [[Part of P. Craig's Ph.d. Thesis](#)]

Quillen, Alice, Pettitt, Alex, **Chakrabarti, Sukanya**, Zhang, Yifan, Gagne, Jonathan, Minchev, Jonathan, 2020, *Birth Sites of Young Stellar Associations: Recent Star Formation in a Flocculent Corrugated Disk*, 2020, MNRAS, 499, 5623Q

Connor, Auge, Huber, Daniel, Heinze, A., Shappee, B.J., Tonry, J., **Chakrabarti, S.**, et al., 2020, *Beyond Gaia: Astetoseismic Distances of M giants Using Ground-Based Transient Surveys*, 2020, Astronomical Journal, 160, 18A

Samaeie, Omid, **Chakrabarti, Sukanya**, Yu, Haibo, Boylan-Kolchin, Michael, et al., *Simulating the hidden giant in cold and self-interacting dark matter models*, 2020, submitted to MNRAS, arXiv 2006.06681

Simon, J., Birrer, S., Bechtol, K., **Chakrabarti, Sukanya**, et al., *Testing the nature of dark matter with extremely large telescopes*, 2019, Astro2020: Decadal Survey on Astronomy and Astrophysics,

science white papers, no. 153; Bulletin of the American Astronomical Society, Vol. 51, Issue 3, id. 153

Chakrabarti, Sukanya, Chang, Philip, Price-Whelan, Adrian, Read, Justin, Blitz, Leo, Hernquist, Lars, *Antila2's role in driving the ripples in the outer gas disk of the Galaxy*, 2019, ApJ Letters, 886 67 [Featured in AAS 2019 press conference]

Bailer-Jones, C., Farnocchia, D., Meech, K., Brasser, R., Micheli, M., **Chakrabarti, Sukanya**, Buie, M., Hainut, O., *Identification of plausible parent stars of the interstellar object 'Oumuamua using Gaia DR-2*, 2018, AJ, 156, 205B

Chakrabarti, Sukanya, Dell, Brennan, Graur, Or, Filippenko, Alexei, Benjamin, Lewis, McKee, Christopher F., *The Supernova Rate Beyond the Optical Radius*, 2018, ApJ Letters, 863, 1 [with co-op undergraduate student Brennan Dell] **

Lipnicky, Andrew, **Chakrabarti, Sukanya** & Chang, Philip, *Relating the HI Gas Structure of Spiral Disks to Passing Satellites*, 2018, MNRAS, 481, 2590L [Part of A. Lipnicky's Ph.d. Thesis] ##

Chakrabarti, Sukanya, Chang, Philip, O'Shaughnessy, Richard, Brooks, Alyson, Shen, Sijing & Bellovary, Jillian, *The Contribution Of Outer HI Disks To The Merging Binary Black Hole Population*, 2017, ApJ Letters, 850, 4

Lipnicky, Andrew, **Chakrabarti, Sukanya**, Wright, Melvyn, Blitz, Leo, Heiles, Carl, Cotton, William, Frayer, David, Blandford, Roger, Shu, Yiping & Bolton, Adam, *The First Detection of Neutral Hydrogen In A Strong Spiral Lens*, 2018, MNRAS, 476, 3097 [Part of A. Lipnicky's Ph.d. Thesis] ##

Chakrabarti, Sukanya, Angeloni, Rodolfo, Freeman, Kenneth, Sargent, Benjamin, Simon, Joshua D., Konorski, Piotr, Gieren, Wolfgang, Sesar, Branamir, Lipnicky, Andrew, Blitz, Leo, Basri, Gibor, Marengo, Massimo, Vacca, William, Guhathakurta, Puragra, Quillen, Alice & Chang, Philip, *Discovery of a Group of Receding, Variable Halo Stars*, 2017, ApJ, 844 [Featured in the AAS 2016 Press conference] [Part of A. Lipnicky's Ph.d. Thesis] ##

Klein, Randolph, Looney, Leslie, Henning, Thomas, **Chakrabarti, Sukanya**, Shenoy, Sachin, 2017, *The Spectral Energy Distribution of the Earliest Phases of Massive Star Formation from the Spitzer and Herschel Archives*, Proceedings of the IAU General Assembly

Lipnicky, Andrew & **Chakrabarti, Sukanya**, *Is the Vast Polar Structure of Dwarf Galaxies A Serious Problem for LambdaCDM?*, 2017, MNRAS, 468, 167 [Part of A. Lipnicky's Ph.d. Thesis] ##

Kim, J.H., Agertz, O., Teyssier, R., Butler, M., Ceverino, D., Choi, J.H., Feldmann, R., Keller, B., Lupi, A., Quinn, T., Revaz, Y., Wallace, S., Gnedin, N., Leitner, S., Shen, S., Smith, B., Thompson, R., Turk, M., Abel, T., Arraki, K., Benincasa, S., **Chakrabarti, S.**, DeCraf, C., Dekel, A., Goldblum, N., Hopkins, P., et al., *The AGORA High-Resolution Galaxy Simulations Comparison Project. II. Isolated Disk Test*, 2016, ApJ, 833, 202K

Chakrabarti, Sukanya, *Galactoseismology in the GAIA Era*, 2016, Formation and Evolution of Galaxy Outskirts, Proceedings IAU Symposium No 321, Editors Gil de Paz, A., Knapen, J.H., and Lee, J.C.

de la Vega, Alex, Quillen, Alice, Carlin, Jeff, **Chakrabarti, Sukanya**, D'Onghia, Elena, *Phase Wrapping of Epicyclic Perturbations in the Wobbly Galaxy*, 2015, MNRAS, 454, 933D

Chakrabarti, Sukanya, Saito, Roberto, Quillen, Alice, Gran, Felipe, Klein, Christopher & Blitz, Leo, *Clustered Cepheid Variables 90 Kiloparsecs from the Galactic Center*, 2015, ApJ Letters, 802L, 4C[Featured in numerous press articles from NBC News, Scientific American, Sky & Telescope and many others]

Wagner-Kaiser, Rachel, Demaio, Tahlia, Sarajedini, Ata & **Chakrabarti, Sukanya**, *The Void in the Sculptor Group Spiral Galaxy NGC 247*, 2014, MNRAS, 443, 3260

Chakrabarti, Sukanya, *A New Probe of the Distribution of Dark Matter in Galaxies*, 2013, ApJ, 771, 98C

Chakrabarti, Sukanya, Magnelli, B., McKee, Chris & Lutz, D. et al., *Photometric Redshifts of Submillimeter Galaxies*, 2013, ApJ, 773, 113C

Chakrabarti, Sukanya, *Spikes in the SED and Ripples in the Outskirts of Galaxies*, 2012, Proceedings of IAU Symposium 284, Spectral Energy Distributions of Galaxies, arXiv: 1201.4864

Chakrabarti, Sukanya, Bigiel, Frank, Chang, Philip, Blitz, Leo, *Finding Dwarf Galaxies From Their Tidal Imprints*, 2011, ApJ, 743, 35 [Featured in AAS January 2011 Press Conference; Editor's Choice in Science]

Purcell, Chris, Bullock, James, Tollerud, Erik, Rocha, Miguel, & **Chakrabarti, Sukanya**, *The Sagittarius Impact As An Architect of Spirality and Outer Rings In The Milky Way*, 2011, Nature, September 15, 2011

Chakrabarti, Sukanya & Blitz, Leo, *Tidal Imprints Of a Dark Sub-Halo On The Outskirts of The Milky Way. II. Azimuthal Location*, 2011 ApJ, 731, 40

Molinari, S., Swinyard, B., + **Chakrabarti, Sukanya**, *Clouds, Filaments and Protostars: The Herschel Hi-Gal Milky Way*, 2010, Astronomy & Astrophysics, Vol. 518, L100

Molinari, Swinyard, B., Bally, J., + **Chakrabarti, Sukanya**, *Hi-gal: The Herschel infrared galactic plane survey*, 2010, Publications of the Astronomical Society of the Pacific, 122, 889, 314

Chakrabarti, Sukanya & Blitz, Leo, *Tidal Imprints Of A Dark Sub – Halo On The Outskirts Of The Milky Way*, 2009, MNRAS Letters, Vol. 399, L118

Chakrabarti, Sukanya & Whitney, B.A., *Panchromatic Spectral Energy Distributions of Dusty Galaxies with RADISHE. I. Predictions for Herschel : Correlating Colors with Galactic Energy Sources*, 2009, ApJ, 690, 1432-1451.

Chakrabarti, Sukanya & McKee, Christopher, F., *Far – Infrared Spectral Energy Distributions and Photometric Redshifts of Dusty Galaxies*, 2008, ApJ, 683n2

Chakrabarti, Sukanya, Fenner, Yeshe, et al., *An Evolutionary Model For Submillimeter Galaxies*, 2008, ApJ, 688, 972.

Chakrabarti, Sukanya, *Simulating Merging Galaxies : The Infrared View* , Proceedings of the Spitzer-Herschel Conference, Crete University Press.

Narayan, Desika, Cox, T.J., Li, Yuexing, Hernquist, Lars, Hopkins, Philip, **Chakrabarti, Sukanya**, Dave, Romeel, et al., 2008, *The Nature of CO Emission From $z > 6$ Quasars* , ApJS, 174, 13N

Chakrabarti, Sukanya, Cox, T.J., et al., 2007, *Feedback – Driven Evolution Of The Far – Infrared Spectral Energy Distributions Of Luminous and Ultraluminous Infrared Galaxies* , ApJ, 658, 840C

McKee, Christopher F. & **Chakrabarti, Sukanya**, 2005, *SEDs Of Massive Protostars* , IAU Symposium Proceedings of the International Astronomical Union 227, Cambridge University Press, p.276-281

Chakrabarti, Sukanya & McKee, Christopher F., 2005, *Far – Infrared Spectral Energy Distributions of Embedded Protostars and Dusty Galaxies I . Theory*, ApJ, 631, 792C

Shu, Frank H., **Chakrabarti, Sukanya** & Laughlin, Gregory, 2004, *Chaos In Spiral Galaxies* , Astrophysics and Space Science Library, Vol. 319, Dordrecht: Kluwer Academic Publishers

Chakrabarti, Sukanya, Laughlin, Gregory, & Shu, Frank H., 2003, *Branch , Spur , And Feather Formation In Spiral Galaxies*, ApJ, 596, 220C

Chakrabarti, Sukanya, Gentle, Adrian P., Kheyfets, Arkady, & Miller, Warner A., *Geodesic Deviation in Regge Calculus*, 1999, Classical and Quantum Gravity, 16, 2381-2391

INTERNAL GRANTS

“Interpreting LIGO observations in the context of galaxy formation”, P.I. Sukanya Chakrabarti, 05/17/2018, \$4500, FEAD, RIT

"The Dynamics of the Milky Way Satellites", P.I. Sukanya Chakrabarti, 01/07/2015, \$4000, FEAD RIT

SUCCESSFUL OBSERVING PROPOSALS AS PI (TOTAL TIME AWARDED AS PI SINCE 2013: 1228 HOURS)

Principal Investigator for HST Cycle 31 proposal, 2023, "Constraining dark matter near the Galactic plane with precisely timed eclipsing binary stars", Awarded 32 orbits.

Principal Investigator for VLT/ESPRESSO proposal, 2023, “Fundamental Galactic parameters from direct acceleration measurements: identifying the jitter floor”, Awarded 53.1 hours

Principal Investigator for VLT/ESPRESSO proposal, 2022, “Fundamental Galactic parameters from direct acceleration measurements: identifying the jitter floor”, Awarded 49.3 hours

Principal Investigator for VLT/ESPRESSO proposal, 2021, “Fundamental Galactic parameters from direct acceleration measurements”, Awarded 35 hours

Principal Investigator for LCO proposal, 2020, “Lensed Supernovae at Low Redshift”,
Awarded 200 hours

Principal Investigator for LCO proposal, 2019, “Searching for the home star of
Oumuamua”, Awarded 63 hours

Principal Investigator for LCO proposal, 2019, “Lensed Supernovae at Low Redshift”,
Awarded 205 hours

Principal Investigator for LCO proposal, 2019, “Lensed Supernovae at Low Redshift”,
Awarded 100 hours

Principal Investigator for LCO proposal, 2018, “Lensed Supernovae at Low Redshift”,
Awarded 200 hours

Principal Investigator for VLA proposal, 2018, “HI Map of a Strong Spiral Lens”,
Awarded 28 hours

Principal Investigator for VLA proposal, 2016, “HI Maps of Strong Spiral Lenses”, Awarded 56
hours

Principal Investigator for Green Bank Telescope proposal, 2016, “Towards A New Probe of Dark
Matter: HI Masses of Strong Spiral Lenses”, Awarded 36 hours.

Principal Investigator for Gemini Fast-Turnaround proposal, 2016A, “NIR Spectra of Distant,
Clustered Cepheid Variables”, Awarded 4 hours.

Principal Investigator for Gemini Director’s Discretionary Time proposal “Near-IR
Spectroscopic Follow-up of Clustered Cepheid Variables 90 kpc from the Galactic Center”,
2015, Awarded 5 hours.

Principal Investigator for APEX Director’s Discretionary Time proposal “Search for a New
Dwarf Galaxy”, 2015, (along with Leo Blitz, Arnaud Belloche, Friedrich Wyrowski), Awarded 11.5
hours.

Principal Investigator for Swope (Las Campanas) proposal “Photometry of a group of variable
stars”, 2015, Awarded 80 hours.

Principal Investigator for GBT proposal “Towards HI Masses of Strong Spiral Lenses”, 2014,
Awarded 110 hours

Principal Investigator for VLA proposal “A New Probe of Dark Matter in Spiral
Galaxies” (\$22K), 2013, (along with Leo Blitz, Mel Wright, Erwin de Blok et al.), Awarded 70
hours

Principal Investigator for Arecibo proposal “HI Masses of Strong Spiral Lenses”, 2013,
Awarded 10 hours

COMPUTING TIME

More than one million CPU hours awarded at NERSC, Xsede, and Google Cloud since 2013.

IN THE PRESS (SELECTED)

Dark Matter In Our Own Backyard Revealed By Nature's Perfect Clocks, Forbes, January 11, 2021

The Milky Way may have less dark matter than astronomers thought, New Scientist, January 11, 2021

Measurements of pulsar acceleration reveal Milky Way's dark matter density, RIT press release, AAS press conference, January 11, 2021

Measurements of Pulsar Acceleration Reveal Milky Way's Dark Side, IAS press release, AAS press conference, January 11, 2021

New Evidence Shows Crash with Antlia 2 gave Milky Way the ripples in its outer disk, RIT press release, AAS press conference, 2019

A 'Ghost Galaxy' May Have Given the Milky Way Its Signature Swirl, VICE, 2019

Astronomers may have spotted the ghost galaxy that hit the Milky Way long ago, Science News, 2019

The Milky Way still bears scars from a collision with a ghostly galaxy, Astronomy Magazine, 2019

Can we find the home of our first interstellar visitor? Scientific American, Oct 1, 2018

Galaxy outskirts likely hunting grounds for dying massive stars and black holes, RIT Press Release, July 25, 2018

Monster Colliding Black Holes Might Lurk On The Edge Of Spiral Galaxies, RIT Press Release, Oct 30, 2017

Satellite Galaxies At The Edge Of The Milky Way Co-Exist With Dark Matter, Science Daily, March 30, 2017

Rogue Dwarf Galaxy Left Ripples in the Milky Way, Science, January 7, 2016

Ripples in Galaxy Could Help Locate Dark-Matter Satellites of Milky Way, UC Berkeley press release, January 7, 2016

Indian-origin Professor Develops New Method To Hunt for Dark Matter, Times of India, January 9, 2016

Dark Matter is Creating Waves at the Edge of the Milky Way, January 14, International Business Times

Dwarf Galaxy's Close Encounter Shakes up the Milky Way, National Geographic, January 15, 2016

A Galaxy Hit-and-Run, Sky and Telescope, January 29, 2016

Stars Reveal Hidden Galaxy, Scientific American, February 17, 2015

Have Astronomers Pinpointed Galaxy X? EarthSky, February 7, 2015

Cepheids Map Milky Way -- And Beyond, Sky & Telescope, Feb 20, 2015

Dark Matter Hunters Suspect They've Found Galaxy X, NBC News, February 6, 2015

Mapping Dark Matter From Ripples of Passing Satellites, EarthSky, January 2012

Tracing Dark Matter With Ripples in the Whirlpool Galaxy, Universe Today, January 2012

Dark Matter Images Reveal Widest View of Dark Matter Mystery, BBC News, January 2012

Finding Dark Galaxies From Their Tidal Imprints, AAS Press Conference, January 2011

Forget Planet X! New Technique could pinpoint Galaxy X, UCB Press Release, January 2011

Dark Follower of the Milky Way Sought, BBC, January 2011

Dark Matter Galaxy Detected: Hidden Dwarf Lurks Nearby, National Geographic, January 2011

Hunt for Galaxy Runt - City-born Scientist Chases Dwarf Mystery, Calcutta Telegraph (Front Page Feature), January 2011

Invisible Milky Way Satellite Uncovered With Help From NERSC, March 21, 2011

Others: Popular Science, MSNBC, Bay Area NBC, Malaysia Sun (selected list) related to Finding Dark Galaxies From Their Tidal Imprints, January 2011

Milky Way Poised For A Third Crash, Telegraph (Front Page), September, 2011

Milky Way May Have A Huge Hidden Neighbor, August 13, 2009, New Scientist.

The Milky Way's Secret Companion ?, November 2009 , Star Date

TELEVISION & RADIO

Appeared on *Space Weather (Extreme Weather on Jupiter and Fastest Winds on Neptune)* (Fall 2013)

WXii's radio show *Connections: Monthly Science Roundtable*, September 8, 2014

SELECTED INVITED PUBLIC TALKS

The dynamics of social change in academia, Anna Mani Lecture, May 2023

Measurements of pulsar accelerations reveal the dark side of the Milky Way, Friends of the Institute of Advanced Study, March 24, 2021

The Mystery of Dark Matter, Chabot Space and Science Center, August 5th, 2016

Hunting For Dark Matter Using Galaxy Quakes, San Jose Astronomical Association, April 9th, 2016

TED-X, Flour City, May 30th 2015

SELECTED RECENT INVITED TALKS

Precision measurements of dark matter with acceleration measurements and direct distances, CalState physics and astronomy colloquium, September 2023

Towards precision measurements of dark matter, NOIRLab colloquium, July 2023

Measuring accelerations: near & far, October 2021, UCLA astronomy colloquium

Fundamental Galactic parameters from direct acceleration measurements, July 2021, IPAC/Caltech Astronomy seminar

Studying the history and formation of the Milky Way with the Nancy Grace Roman Telescope, January 2021, AAS Splinter session

Measuring accelerations near & far, LBL, INPA Seminar, October 2020

Direct measurements of the Galactic acceleration, Institute for Advanced Study, Princeton Astrophysics Seminar, September 2020

The darkest galaxies, Riverside physics colloquium, October 2019

Discovery of a Group of Receding, Variable Halo Stars, Science and Evolution of Gemini Observatory conference, 2018, July 22-26, San Francisco

Outer HI Disks: Probes of dark matter sub-structure to LIGO sources, Harvard University, September 2017

Outer HI Disks: Probes of dark matter sub-structure to LIGO sources, Yale University, October 2017

Invited Review Talk at KITP Santa Barbara's Cold Universe conference on *Extended HI Disks*, June 2016

Astronomy seminar at Imperial College, March 2016, *A New Probe of the Distribution of Dark Matter in Galaxies*

ISMA workshop at University of Toronto, June 2015, *The Milky Way Satellites*

Astronomy colloquium at University of CA, Santa Cruz, November 2014, *A New Probe of the Distribution of Dark Matter in Galaxies*

CONFERENCE/PROGRAM ORGANIZATION

Chair of SOC for conference on “Towards real-time Galactic dynamics”, Lorentz Center, scheduled for July 2022, with Robyn Sanderson, Jason Wright, David Kaplan, Elena Maria Rossi

Lead Coordinator for KITP Program on “Dynamical Models for Stars and Gas in Galaxies In the GAIA Era”, along with Jo Bovy, James Bullock, and Heidi Newberg, March 4 - May 10, 2019

Chair of SOC for the AAS Topical Conference Series (TCS) meeting on “Probes of Dark Matter on Galaxy Scales”, held July 2013 in Monterey CA. SOC: Sukanya Chakrabarti, Leo Blitz, Lars Hernquist, Manoj Kaplinghat, Chris Fassnacht, Rachel Mandelbaum, Jay Gallagher, Martin Weinberg, David Merritt.

DIVERSITY AND OUTREACH (SELECTED)

Mentor for native Hawaiian REU students at University of Hawaii (2021 - 2024)

Founder of Distinguished Speaker Series for Women Scientists, UAH, 2023

Member of Committee on the Status of Women in Astronomy (CSWA) 2020 - present (Lead of demographics survey)

Co-Founder of WISE Distinguished Speaker Series at RIT (2016)

Member of Women in Science Executive Committee (2013-present)

Member of Council for Representation and Engagement of Women (CREW) (2016-present)

Inclusive Excellence Mentor at RIT (2018)

Founded Women in Science (WIS) Chats at UC Berkeley (2009-2011)

Founded Women in Science (WIS) Chats at Harvard (2005-2008)
Volunteer Educator for Citizen Schools (2008)

OTHER EXTERNAL SERVICE

Referee for MNRAS, A & A, AJ, PRL, PRD, 2007 - present.

NSF grant review panel, (2007, 2011, 2016, 2023)

ESO Time Allocation Committee, 2023

HST Grant Review panel, 2011.

Gemini Time Allocation Committee, 2016

NASA Grant Review panel, (2017, 2020)

Group Leader and Convener of US ELT Key Science Program, “Resolved Stellar Populations and Their Environments”, 2018

Facilitator for Snowmass commissioned white papers on Facilities for Cosmic Probes of Dark Matter & Key Project on High Precision Astrophysics, 2020-2021