Mithi Alexa C. de los Reyes

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Employment

Assistant Professor of Physics and Astronomy — Jul. 2023 - present
Department of Physics and Astronomy, Amherst College, Amherst, MA

Postdoctoral Researcher — Aug. 2022 - Jul. 2023
Kavli Institute of Particle Astrophysics and Cosmology, Palo Alto, CA

Education

California Institute of Technology, Pasadena, CA — Sep. 2017 - Jun. 2022
PhD in Astrophysics (Jun. 2022)
Advisor: Evan Kirby
Thesis: *Dwarf Galaxies in the Local Universe as Probes of Stellar and Galactic Evolution*
MS in Astrophysics (Jun. 2019)

Institute of Astronomy, University of Cambridge, UK — Oct. 2016 - Jul. 2017
MPhil in Astronomy (August 2017)
Advisor: Rob Kennicutt
Thesis: *The Integrated Star Formation Law in Nearby Galaxies*

North Carolina State University, Raleigh, NC — Aug. 2012 - May 2016
BS Physics (summa cum laude), BS Mathematics (summa cum laude)

Awards and Honors

LSST Scialog Fellow	2024
Stanford Science Fellowship	2022
Caltech Three Minute Thesis, First Prize and People's Choice winner	2021
Ford Foundation Dissertation Fellowship, Honorable Mention	2021
NSF Graduate Research Fellowship	2016
Winston Churchill Scholarship	2016
Astronaut Scholarship	2014 & 2015
Barry M. Goldwater Scholarship	2014
Park Scholarship (full-tuition merit scholarship to NCSU)	2012

Teaching

Instructor of record, Amherst College

- Observational Techniques (ASTR 337): Fall 2023, Fall 2024, Fall 2025
- Introductory Astrophysics (ASTR 235): Fall 2024, Fall 2025
- Advanced Astrophysics (ASTR 352): Spring 2024, Spring 2025, Spring 2026
- Intro to Data Science with Astronomical Applications (ASTR 200): Spring 2024, Spring 2025
- Physics and Astronomy in Sociocultural Context (PHYS/ASTR 255): Spring 2026

Pedagogical Partner Program member, Amherst College

- Worked with student partner Ha Dong '26 to develop teaching practices for ASTR 352 (Spring 2024)

Teaching assistant, Caltech

- Assisted, guest lectured for, and developed course materials for Ay123 (graduate-level Stars), Ay124 (graduate-level Galaxies), Ay126 (graduate-level Interstellar Medium), Ay101 (undergraduate-level Stars)

Mentorship

Undergraduate honors thesis students

- Meghan McBride (class of 2025): "Hunting for Milky Ways with Massive Satellite Companions"
  - Winner of the David Van Blerkom Research Scholarship in Astronomy at UMass Amherst
- Kinsey Cronin (class of 2025): "Determining the Dominant Type Ia Supernovae Progenitor in Dwarf Spheroidal Galaxies"
  - Winner of the Mary Dailey Irvine Award for a distinguished thesis in the Five College Astronomy Department
- Elizabeth Hillenkamp (class of 2024): "BRIDGE-ing the Intermediate-Mass Black Hole Gap: Analysis of a Candidate Wandering Black Hole in a Dwarf Galaxy"

Undergraduate advising

- Primary undergraduate research supervisor (thesis students italicized):
  - Current:
    - *Will Grant* (Amherst '27) — Fall 2023 - present
    - Valentina Guerrero (Amherst '27) — Summer 2024 - present
    - Vanshika Gupta (Amherst '28) — Summer 2025 - present
    - Bibi Hanselman (Amherst '27) — Fall 2025 - present
    - *Sam Kleiman* (Amherst '27) — Fall 2023 - present
    - Joe Leckie (Amherst '28) — Summer 2025 - present
    - Varsha Palaniyandy (Amherst '28) — Summer 2025 - present
  - Former:
    - Damien Algernon (Amherst '25E) — Fall 2024
    - Sam Johar (Amherst '27) — Summer 2024
    - Shea Stabila (Amherst '28) — Summer 2025
    - *Meghan Mcbride* (UMass '26)
    - *Kinsey Cronin* (Amherst '25) → New Mexico State University
    - *Eliza Hillenkamp* (Amherst '24) → UC San Diego (NSF Graduate Research Fellow)
    - Ouyanatu Maina (Amherst '24) → Lawrence Berkeley National Laboratory
- Undergraduate research co-advisor (thesis students italicized):
  - Current:
    - *Josie Carrillo* (Amherst '26) — Fall 2024 - present
    - *Alec Treadway* (Amherst '26) — Spring 2025 - present
  - Former:
    - *Bea Cajandig* (University of the Philippines Diliman) → National Tsing Hua University, Taiwan
    - *Azana Queen* (Stanford University) → Princeton University
    - *Maria Lourdes Balane* (University of the Philippines Diliman) → University of Victoria, Canada
- Amherst Summer Undergraduate Research Fellowship (SURF): research supervisor for 7 students (2024, 2025)
- Co-organizer of Amherst STEM Incubator program, dedicated to introducing students from underrepresented backgrounds to research (2024, 2025)

Graduate advising

- Leonardo Barba (UMass PhD student)
  - Initial Research Project: "Stellar-Gas Kinematics in Void Dwarf Galaxies"
  - Thesis project (in progress): "The Dynamical Evolution of Extreme Dwarf Galaxies"

Refereed Publications

Names of trainees directly supervised by MdlR are underlined. Amherst undergraduates are indicated with a star ($\star$), non-Amherst undergraduates are indicated with a diamond ($\diamond$), graduate students are indicated with a square ($\square$), and postdocs are indicated with a circle ($\circ$).

Byler, N. and **de los Reyes, M.A.** (co-first authors), Telford, O.G., Dalcanton, J.J., Weisz, D.R., et al. "Star formation history recovery from resolved photometry vs. integrated spectroscopy." (in prep. for submission to *The Open Journal of Astrophysics*)

Bhattacharyya, J.$^\circ$, Herron, G., Asali, Y., Mintz, A., **de los Reyes, M.A.**, et al. "Morphologies of SAGAbg Low-mass Galaxies in Legacy Survey Multi-band Imaging: Dependence on Stellar Masses, Star Formation Rates and Low-redshift Evolution." (submitted to *AAS Journals*, arXiv:2607.16170)

Cronin, K.R.*, **de los Reyes, M.A.**, Kirby, E.N., Henderson, L.E., Ji, A.P., et al. "Manganese Production in Supernovae in Dwarf Spheroidal Galaxies." (submitted to *AAS Journals*)

Barba, L.A.$^\square$, **de los Reyes, M.A.**, Ruan, D., Brooks, A., Westfall, K. "Dwarfs in Void Environments (DIVE) II: Stellar-Gas Kinematics." (submitted to *AAS Journals*)

Ruan, D., Brooks, A., Barba, L.A.$^\square$, **de los Reyes, M.A.**, et al. "V/σ Trends with Mass for Dwarf Galaxies from the Marvelous Massive Dwarfs Suite." (submitted to *AAS Journals*, arXiv:2605.06893)

Heiger, M., et al. (including **de los Reyes, M.A.**) "It's a matter of time: Empirical Constraints on Supernova Yields and Delay Times from Dwarf Spheroidal Galaxies." *The Astrophysical Journal*, 1007.139 (2026). doi:10.3847/1538-4357/ae88f8

Asali, Y., et al. (including **de los Reyes, M.A.**) "The SAGA Survey. VI.: The Size–Mass Relation for Low-Mass Galaxies Across Environments." *The Astrophysical Journal*, 995.79 (2025). doi:10.3847/1538-4357/ae147d

Kado-Fong, E., et al. (including **de los Reyes, M.A.**) "SAGAbg III: Environmental Stellar Mass Functions, Self-Quenching, and the Stellar-to-Halo Mass Relation in the Dwarf Galaxy Regime." *The Astrophysical Journal*, 994.231 (2025). doi:10.3847/1538-4357/ae102d

de los Reyes, M.A., Asali, Y., Wechsler, R., Geha, M., Mao, Y.-Y., et al. (including Grant, W.*) "Stellar Mass Calibrations for Local Low-Mass Galaxies." *The Astrophysical Journal*, 989.91 (2025). doi:10.3847/1538-4357/ade4c5

Yuan, S., Wechsler, R.H., Wang, Y., **de los Reyes, M.A.**, et al. "Unraveling Emission Line Galaxy Conformity at $z \sim 1$ with DESI Early Data." *Monthly Notices of the Royal Astronomical Society* 583.1216 (2025). doi:10.1093/mnras/staf368

Henderson, L.E., Kirby, E.N., **de los Reyes, M.A.,** et al. "Neutron-capture Element Abundances of 491 Stars in Milky Way Dwarf Satellite Galaxies from Medium-Resolution Spectra" *The Astrophysical Journal* 983.117 (2025). doi:10.3847/1538-4357/adbe7d

Kado-Fong, E., Geha, M., Mao, Y.-Y., **de los Reyes, M.A.**, et al. "SAGAbg II: the Low-Mass Star-Forming Sequence Evolves Significantly Between $0.05 < z < 0.21$." *The Astrophysical Journal* 976.83 (2024). doi:10.3847/1538-4357/ad8137

Wang, Y., et al. (including **de los Reyes, M.A.**) "The SAGA Survey. V. Modeling Satellite Systems around Milky Way-mass Galaxies with Updated UniverseMachine." *The Astrophysical Journal* 976.119 (2024). doi:10.3847/1538-4357/ad7f4c

Geha, M., et al. (including **de los Reyes, M.A.**) "The SAGA Survey. IV. The Star Formation Properties of 101 Satellite Systems around Milky Way-mass Galaxies." *The Astrophysical Journal* 976.118 (2024). doi:10.3847/1538-4357/ad61e7

Mao, Y.Y., et al. (including **de los Reyes, M.A.**) "The SAGA Survey. III. A Census of 101 Satellite Systems around Milky Way-mass Galaxies." *The Astrophysical Journal* 976.117 (2024). doi:10.3847/1538-4357/ad64c4

Zhuang, Z., Kirby, E.N., Steidel, C.C., **de los Reyes, M.A.**, et al. "Metals in Star-Forming Galaxies with KCWI. I. Methodology and First Results on the Abundances of Iron, Magnesium, and Oxygen." *The Astrophysical Journal* 972.182 (2024). doi:10.3847/1538-4357/ad5ff8

Kado-Fong, E., Geha, M., Mao, Y.-Y., **de los Reyes, M.A.**, et al. "SAGAbg I: A Near-Unity Mass Loading Factor in Low-Mass Galaxies via their Low-Redshift Evolution in Stellar Mass, Oxygen Abundance, and Star Formation Rate." *The Astrophysical Journal* 966.129 (2024). doi:10.3847/1538-4357/ad3042

Wang, S., et al. (including **de los Reyes, M.A.**) "High-Resolution Chemical Abundances of the Nyx Stream." *The Astrophysical Journal* 955.129 (2023). doi:10.3847/1538-4357/acec4d

de los Reyes, M.A., Kirby, E.N., Zhuang, Z., Steidel, C.C., Chen, Y., Wheeler, C. "Dwarfs in Void Environments (DIVE): The Stellar Kinematics of Void Dwarf Galaxies Using the Keck Cosmic Web Imager." *The Astrophysical Journal* 951.52 (2023). doi:10.3847/1538-4357/acd189

de los Reyes, M.A., Kirby, E.N., Ji, A.P., Nuñez, E.H. "Simultaneous Constraints on the Star Formation History and Nucleosynthesis of Sculptor dSph." *The Astrophysical Journal* 925.66 (2022). doi:10.3847/1538-4357/ac332b

Zhuang, Z., Kirby, E.N., Leethochawalit, N., & **de los Reyes, M.A.** "NGC 147 Corroborates the Break in the Stellar Mass-Stellar Metallicity Relation for Galaxies." *The Astrophysical Journal* 920.63 (2021). doi:10.3847/1538-4357/ac1340

Kennicutt, R.C. & **de los Reyes, M.A.** "Revisiting the Integrated Star Formation Law. Paper II: Starbursts and the Combined Global Schmidt Law." *The Astrophysical Journal* 908.61 (2021). doi:10.3847/1538-4357/abd3a2

Shin, K., et al. (including **de los Reyes, M.A.**) "Metal Abundances across Cosmic Time (MACT) Survey. III. The Relationship between Stellar Mass and Star

Formation Rate in Extremely Low-Mass Galaxies." *Monthly Notices of the Royal Astronomical Society* 502.2 (2021). doi:10.1093/mnras/staa3307

de los Reyes, M.A., Kirby, E.N., Seitenzahl, I.R., Shen, K.J. "Manganese Indicates a Transition from Sub- to Near-Chandrasekhar Type Ia Supernovae in Dwarf Galaxies." *The Astrophysical Journal* 891.85 (2020). doi:10.3847/1538-4357/ab736f

Kirby, E.N., et al. (including **de los Reyes, M.A.**) "Evidence for Sub-Chandrasekhar Type Ia Supernovae from Stellar Abundances in Dwarf Galaxies." *The Astrophysical Journal* 881.45 (2019). doi:10.3847/1538-4357/ab2c02

de los Reyes, M.A. & Kennicutt, R.C. "Revisiting the Integrated Star Formation Law. Paper I: Non-Starbursting Galaxies." *The Astrophysical Journal* 872.16 (2019). doi:10.3847/1538-4357/aafa82

Kneller, J.P. & **de los Reyes, M.A.** "The Effect of Core-Collapse Supernova Accretion Phase Turbulence on Neutrino Flavor Evolution." *Journal of Physics G: Nuclear and Particle Physics* 44.8 (2017). doi:10.1088/1361-6471/aa7bc8

Ly, C., et al. (including **de los Reyes, M.A.**) "The Metal Abundance Across Cosmic Time (MACT) Survey I: Optical Spectroscopy in the Subaru Deep Field." *The Astrophysical Journal Supplement Series* 226.5 (2016). doi:10.3847/0067-0049/226/1/5

de los Reyes, M.A., Ly, C., Lee, J.C., et al. "The Relationship Between Stellar Mass, Gas Metallicity, and Star Formation Rate for Hα-selected Galaxies at $z \approx 0.8$ from the NewHα survey." *The Astronomical Journal* 149.79 (2015). doi:10.1088/0004-6256/149/2/79

Additional Publications

de los Reyes, M.A. "Astronomers Need to Rename the Magellanic Clouds." *Physics* 16.152 (2023). doi:10.1103/Physics.16.152

Kahanamoku, S., et al. (including **de los Reyes, M.A.**) "A Native Hawaiian-led summary of the current impact of constructing the Thirty Meter Telescope on Maunakea." Astro2020 white paper (2020). arXiv:2001.00970

Khullar, G., et al. (including **de los Reyes, M.A.**) "Astrobites as a Community-led Model for Education, Science Communication, and Accessibility in Astrophysics." Astro2020 white paper (2019). arXiv:1907.09496

Successful Observing Proposals

"Finding Nearby Reionization Fossils with LSST" 2026B
de los Reyes, M.A., Bhattacharyya, J.°, Wu, J.C.
Rubin/LSST compute resources (60 GPU hours + 10.5 TB storage)

"HI kinematics of dwarf galaxies in cosmic voids" 2026B
de los Reyes, M.A., Barba, L.□, Yun, M.
Very Large Array (60.3 hours)

"The Environments of Dwarf Galaxies in Cosmic Voids" 2026A
de los Reyes, M.A., Barba, L.□, Yun, M.
Very Large Array (48.55 hours)

"Deep Hα Imaging of a Morphologically Disturbed Galaxy Merger" 2026Q2

de los Reyes, M.A., Barba, L.$^{\square}$
Perkins Telescope Observatory: PRISM (0.5 nights)

"Broad-line AGN Feedback in Dwarf Galaxies" 2025A
Barba, L.$^{\square}$, **de los Reyes, M.A.**
Gemini: GMOS (7.6 hours)

"Star Formation in Massive Satellites around Milky Way Analogs" 2024Q3, 2025Q1
de los Reyes, M.A., Kleiman, S.*
Perkins Telescope Observatory: PRISM (4 nights)

"Star Formation in Dwarf Galaxies as a Function of Environment" 2023Q4
de los Reyes, M.A., Hillenkamp, E.*, Asali, Y.
Perkins Telescope Observatory: PRISM (4 nights)

"Nucleosynthesis in Degenerate Objects" 2018A, 2018B, 2019A, 2020A, 2021A
Kirby, E.N., **de los Reyes, M.A.**, Duggan, G.E.
Keck II: DEIMOS (7 nights)

"Chemical Abundances of Nyx Stars" 2020A
Necib, L., Ji, A., Strom, A.E., **de los Reyes, M.A.**
Keck I: HIRES (4 nights)

"Spatially Resolved Metallicities in Void Dwarf Galaxies" 2019B
Kirby, E.N., **de los Reyes, M.A.**, Steidel, C.S.
Keck II: KCWI (3 nights)

Successful Funding Proposals

Research Corporation for Science Advancement (Scialog) seed funding 2026
de los Reyes, M.A., Palmese, A., Villar, V. A.
Tiny Galaxies, Big Waves: Discovering the First Dwarf Binary AGN Using Early Rubin Data
$66,000

Research Corporation for Science Advancement (Scialog) seed funding 2026
de los Reyes, M.A., Olsen, C., McQuinn, K.
First Light in the Void
$66,000

George I. Alden Trust 2025
de los Reyes, M.A., Hanneke, D., Follette, K.
$225,000 for an observing dome and 28-inch telescope for Amherst College

Amherst College Serving the Greater Good Initiative 2024
de los Reyes, M.A., Follette, K.
$18,000 for course development

Invited Research Presentations

Physics Colloquium, Elon University Jan. 2027
Physics Colloquium, NC State University Jan. 2027
HugNayan, Philippine Space Agency, Manila, Philippines Oct. 2026
International Conference on Particles, Astronomy, and Radiation,
Ateneo de Davao University, Davao City, Philippines Oct. 2026
High Energy/Astro/Particle Physics Seminar, University of Utah Oct. 2026
Astro Lunch Talk, New Mexico State University Sep. 2026

	Galactic Metal Cycles Workshop, Kylemore, Ireland	May 2026
	Data Science Initiative, Amherst College	Feb. 2026
	Astronomy Colloquium, Yale University	Oct. 2025
	Faculty Colloquium, Amherst College	Oct. 2025
	Philippine Space Science and Astronomy Research Conference, Adamson University, Manila, Philippines	Aug. 2025
	Astronomy Colloquium, CUNY City Tech	May 2025
	Astronomy Colloquium, University of Toronto	Apr. 2025
	Astronomy Colloquium, Boston University	Feb. 2025
	Physics & Astronomy Colloquium, Williams College	Jan. 2025
	Physics & Astronomy Colloquium, Bates College	Dec. 2024
	Astronomy Colloquium, Wesleyan College	Dec. 2024
	Astronomy Colloquium, Dartmouth College	Oct. 2024
	Physics & Astronomy Colloquium, Williams College	Apr. 2024
	Astronomy Colloquium, University of Michigan	Mar. 2024
	Astronomy Colloquium, Eastern Michigan University	Mar. 2024
	FCAD Colloquium, UMass Amherst	Feb. 2024
	Galaxies Science Interest Group Meeting, NASA (link)	Nov. 2023
	Samahang Pisika ng Pilipinas 41st Meeting, Siargao, Philippines	Jul. 2023
	CIERA Observers Seminar, Northwestern University Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)	May 2023
	GANAP Seminar, University of the Philippines Diliman	Mar. 2023
	Cosmology & Astronomy Seminar, UC Davis	Jan. 2023
	Physics Colloquium, Davidson College	Nov. 2022
	AAS Journal Author Series, American Astronomical Society (link)	Jul. 2022
	Astronomy Seminar, Departamento de Astronomia IAG-USP	Jun. 2022
	Astro/Space Seminar, University of Kansas	Nov. 2021
	Physics & Astronomy Colloquium, Pomona College	Nov. 2021
	Theoretical Astrophysics Center Seminar, UC Berkeley	Nov. 2021
	Astro Lunch, University of Pittsburgh/Carnegie Mellon University	Oct. 2021
	Astronomy Seminar, Michigan State University	Oct. 2021
	Galaxy Hour, Ohio State University	Oct. 2021
	Science Happy Hour, Northwestern University CIERA	Oct. 2021
	Lunch Talk, Carnegie Observatories	Sep. 2021
	CfA Seminar, Center for Astrophysics | Harvard & Smithsonian	Sep. 2021
	Physics & Astronomy Colloquium, Cal Poly Pomona	Oct. 2019
Contributed Research Presentations	*Santa Cruz Galaxy Workshop* (Santa Cruz, CA)	Aug. 2026
	Rubin Community Workshop (Palo Alto, CA)	Jul. 2026
	247th AAS Meeting (Phoenix, AZ)	Jan. 2026
	Galactic Frontiers II (Dartmouth, NH)	Jun. 2025
	56th AAS Division on Dynamical Astronomy meeting (Atlanta, GA)	May 2025
	Dwarf Galaxies, Star Clusters, and Streams in the LSST Era (KICP)	Jul. 2024
	243rd AAS Meeting (New Orleans, LA)	Jan 2024
	Dwarf Galaxies in the Local Volume and Beyond (Flatiron/CCA)	Jul. 2023
	Keck Science Meeting (UCSD)	Sep. 2021
	235th AAS Meeting (Honolulu, HI)	Jan. 2020
	Keck Science Meeting (UCLA)	Sep. 2019
	233rd AAS Meeting; Chambliss Student Award Winner (Seattle, WA)	Jan. 2019
	Stellar Archaeology as a Time Machine (Kavli IPMU, Tokyo, Japan)	Dec. 2018
	Laws of Star Formation (Institute of Astronomy, Cambridge, UK)	Jul. 2018
	232nd AAS meeting (Denver, CO)	Jun. 2018
	The Scales of Star Formation in Galaxies (Sexten, Italy)	Jul. 2017
	223rd AAS meeting (Washington, DC)	Jan. 2014

Other Invited Presentations

Astronomy on Tap: Manila	Oct. 2026
Rubin Lightning Story	Jul. 2026
24th Annual Symposium for the NSF Astronomy and Astrophysics Postdoctoral Fellows	Jan. 2026
Astronomy on Tap: Western Mass	Oct. 2025
40th Research Symposium keynote (NC School of Science and Math)	Apr. 2025
(Un)Timely Narratives symposium (Amherst College)	Apr. 2025
SciTech Cafe	Oct. 2024
Committee On Inclusiveness in SDSS	May 2024
Mount Holyoke College Astronomy Club	Apr. 2024
Amherst College HPC Celebration	Apr. 2024
XMC Workshop: Milky Clouds over Manhattan (Flatiron/CCA)	Feb. 2024
Lamat AstroTalk (UCSC)	Jun. 2023
KIPAC Community Day	Apr. 2023
Open Cultural Astronomy Forum Seminar	Feb. 2023
San Diego Astronomy Association	Oct. 2020
California Academy of Sciences Virtual NightLife series	Jul. 2020
Caltech Astronomy Stargazing and Lecture series	May 2020
Astronomy on Tap: Los Angeles	Jan. 2018

Outreach and Professional Service

College service

- Faculty Housing Committee — Dec. 2024 - Jul. 2026
- Amherst American Association of University Professors (AAUP)
  Executive Committee Member At Large — Aug. 2025 - Jul. 2026
- Amherst College Observatory Director — Aug. 2024 - present
  - Manages and maintains 5 rooftop telescopes
  - Hires and coordinates with student observatory managers
  - Runs outreach events for Amherst College community, admissions events, and general public
- Department Climate and Community Committee — Aug. 2023 - Dec. 2025
- Other service and outreach
  - Academic advisor for 17 Amherst undergraduates (6 first-year advisees, 11 physics/astronomy majors)
  - Invited panelist at 2025 Access to Amherst program
  - Invited panelist at 2024 Amherst College New Faculty Orientation
  - Organized Solar Week (4 days of tabling and science demos leading up to total solar eclipse in Apr. 2024, handed out >1000 eclipse glasses)

Professional service

- Reviewer (within past 5 years) for *NASA*, *European Research Council*
- Journal referee (within past 5 years) for *Astronomy & Astrophysics*, *Astronomical Journal*, *Astrophysical Journal*, *Monthly Notices of the Royal Astronomical Society*, *Nature*
- Professional membership: American Astronomical Society, International Astronomical Union