

Mithi Alexa C. de los Reyes

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<https://github.com/mdlreyes>

Employment	<i>Assistant Professor of Astronomy</i> July 2023 - present Department of Physics and Astronomy, Amherst College, Amherst, MA
	<i>Postdoctoral Researcher</i> Aug. 2022 - July 2023 Kavli Institute of Particle Astrophysics and Cosmology, Palo Alto, CA
Education	<i>California Institute of Technology</i> , Pasadena, CA Sept. 2017 - June 2022 PhD in Astrophysics (June 2022) Advisor: Evan Kirby Thesis: <i>Dwarf Galaxies in the Local Universe as Probes of Stellar and Galactic Evolution</i> MS in Astrophysics (June 2019)
	<i>Institute of Astronomy</i> , University of Cambridge, UK Oct. 2016 - Jul. 2017 MPhil in Astronomy (August 2017) Advisor: Rob Kennicutt Thesis: <i>The Integrated Star Formation Law in Nearby Galaxies</i>
	<i>North Carolina State University</i> , Raleigh, NC Aug. 2012 - May 2016 BS Physics (summa cum laude), BS Mathematics (summa cum laude)
Awards and Honors	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
Refereed Publications	Wang, S., et al. (including de los Reyes, M.A.) "High-Resolution Chemical Abundances of the Nyx Stream." (submitted) arXiv:2210.15013
	de los Reyes, M.A. , Kirby, E.N., Zhuang, Z., Steidel, C.C., Chen, Y., Wheeler, C. "The Stellar Kinematics of Void Dwarf Galaxies Using KCWI." <i>The Astrophysical Journal</i> 951.52 (2023). doi:10.3847/1538-4357/acd189
	de los Reyes, M.A. , Kirby, E.N., Zhuang, Z., Steidel, C.C., Chen, Y., Wheeler, C. "The Stellar Kinematics of Void Dwarf Galaxies Using KCWI." <i>The Astrophysical Journal</i> 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." <i>The Astrophysical Journal</i> 925.66 (2022). doi:10.3847/1538-4357/ac332b
	Zhuang, Z., Kirby, E.N., Leethochawalit, N., & de los Reyes, M.A. "NGC 147 Cor-

roborates 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., Seitzzahl, 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 H α -selected Galaxies at $z \approx 0.8$ from the NewH α survey.” *The Astronomical Journal* 149.79 (2015). doi:10.1088/0004-6256/149/2/79

Additional Publications

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

“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)

Invited Research Presentations

<i>Astronomy Colloquium</i> , University of Michigan	Mar. 2024
<i>Samahang Pisika ng Pilipinas 41st Meeting</i> , Siargao, Philippines	July 2023
<i>CIERA Observers Seminar</i> , Northwestern University Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)	May 2023
<i>GANAP Seminar</i> , University of the Philippines Diliman	Mar. 2023
<i>Cosmology & Astronomy Seminar</i> , UC Davis	Jan. 2023
<i>Physics Colloquium</i> , Davidson College	Nov. 2022
<i>AAS Journal Author Series</i> , American Astronomical Society (link)	July 2022
<i>Astronomy Seminar</i> , Departamento de Astronomia IAG-USP	June 2022
<i>Astro/Space Seminar</i> , University of Kansas	Nov. 2021
<i>Physics & Astronomy Colloquium</i> , Pomona College	Nov. 2021
<i>Theoretical Astrophysics Center Seminar</i> , UC Berkeley	Nov. 2021
<i>Astro Lunch</i> , University of Pittsburgh/Carnegie Mellon University	Oct. 2021
<i>Astronomy Seminar</i> , Michigan State University	Oct. 2021
<i>Galaxy Hour</i> , Ohio State University	Oct. 2021
<i>Science Happy Hour</i> , Northwestern University CIERA	Oct. 2021
<i>Lunch Talk</i> , Carnegie Observatories	Sept. 2021
<i>CfA Seminar</i> , Center for Astrophysics Harvard & Smithsonian	Sept. 2021
<i>Physics & Astronomy Colloquium</i> , Cal Poly Pomona	Oct. 2019

Contributed Research Presentations

<i>Dwarf Galaxies in the Local Volume and Beyond</i> (Flatiron/CCA)	July 2023
<i>Keck Science Meeting</i> (UCSD)	Sept. 2021
<i>235th AAS Meeting</i> (Honolulu, HI)	Jan. 2020
<i>Keck Science Meeting</i> (UCLA)	Sept. 2019
<i>233rd AAS Meeting</i> ; Chambliss Student Award Winner (Seattle, WA)	Jan. 2019
<i>Stellar Archaeology as a Time Machine</i> (Kavli IPMU, Tokyo, Japan)	Dec. 2018
<i>Laws of Star Formation</i> (Institute of Astronomy, Cambridge, UK)	July 2018
<i>232nd AAS meeting</i> (Denver, CO)	June 2018
<i>The Scales of Star Formation in Galaxies</i> (Sexten, Italy)	July 2017
<i>223rd AAS meeting</i> (Washington, DC)	Jan. 2014

Other Invited Presentations

<i>Lamat AstroTalk</i> (UCSC)	June 2023
<i>KIPAC Community Day</i>	Apr. 2023
<i>Open Cultural Astronomy Forum Seminar</i>	Feb. 2023
<i>San Diego Astronomy Association</i>	Oct. 2020
<i>California Academy of Sciences Virtual NightLife series</i>	July 2020
<i>Caltech Astronomy Stargazing and Lecture series</i>	May 2020
<i>Astronomy on Tap: Los Angeles</i>	Jan. 2018

Teaching Experience

Instructor of record, Amherst College

- ASTR337 (Observational Techniques), Fall 2023
- ASTR200 (Intro to Data Science with Astronomical Applications), Spring 2023
- ASTR352 (Galaxies and the Universe), Spring 2023

Teaching assistant, Caltech

- Assisted in multiple astronomy classes, with student evaluation scores:
 - Ay123 (graduate-level Stars), Fall 2018: 4.89/5
 - Ay124 (graduate-level Galaxies), Winter 2018: 5/5

- Ay126 (graduate-level Interstellar Medium), Spring 2019: 5/5
- Ay101 (undergraduate-level Stars), Fall 2019: 5/5
- Held office hours and exam review sessions, wrote problem set solutions, graded homework and exams
- Created a hands-on final project assignment to analyze planetary nebula spectra

Guest lecturer

- Delivered guest lectures on stellar nucleosynthesis, star formation, stellar feedback, stellar spectra, and galaxy evolution for graduate and undergraduate classes
- Wrote homework problems (including interactive Jupyter notebook problems) based on lecture material

Additional training for teaching and mentorship

- Took Caltech’s E110 course (*Principles of University Teaching and Learning in STEM*) on pedagogical practices in science education
- Worked with the Caltech Center for Teaching, Learning, and Outreach (CTLO) to obtain feedback and reflect on guest lectures

Outreach and Professional Service

Astrobiters collaboration

Jan. 2017 - Aug. 2022

- *Admin committee co-chair* (Aug. 2020 - present): Help make steering decisions for the Astrobiters collaboration; currently leading the collaboration-wide development of a formal Code of Conduct
- *Diversity, equity, and inclusion committee co-chair* (Apr. 2018 - Aug. 2020): Spearheaded initiatives to promote equity & inclusion, including multiple series of Astrobiters posts (#BlackInAstro, Astronomy and Indigenous Communities), and a collaboration-wide climate survey
- *Policy committee chair* (Apr. 2018 - Aug. 2019): Coordinated with AAS Bahcall Public Policy Fellow to schedule posts on public policy
- *Author* (Jan. 2017 - Jan. 2019): Wrote undergraduate-level summaries of astronomy papers for Astrobiters website

Caltech Gender Minorities & Women in PMA

Apr. 2018 - June 2022

- *Organizing committee member* (Aug. 2018 - June 2022): Planned and ran events on campus relating to gender minorities & women in physics, math, and astronomy (PMA), including journal clubs and workshops
- *Acting president* (Feb. 2020 - Aug. 2020): Planned and ran biweekly committee meetings, oversaw quarterly events
- *FUTURE of Physics co-chair* (Aug. 2019 - Oct. 2019): Organized two-day fly-out program to bring talented undergraduate women to Caltech; recruited and coordinated graduate student volunteers; ran multiple panels and workshops

Caltech Astronomy outreach

Oct. 2017 - June 2022

- Helped organize monthly Lecture and Stargazing Events
- Assisted events by running a telescope or answering questions as part of a panel
- Participated in “guerrilla outreach” events, including Sidewalk Astronomy (set up telescopes in downtown Pasadena) and Science Train (ride the LA Metro and answer questions about astronomy)

Additional service

- Scientific referee for *Astronomy & Astrophysics*, *Astronomical Journal*
- *Graduate representative* (June 2020 - June 2021): Led Astronomy department graduate student meetings; regularly checked in with students and served as spokesperson for graduate students in the department
- *Respect is a Part of Research organizer* (Jan. 2020 - June 2021): Helped run annual peer-led training about preventing sexual violence and sexual harassment
- *#ShutDownSTEM organizer* (June 2020): Helped organize international academic strike in support of Black Lives; ran the Caltech Astronomy #ShutDownSTEM strike day activities