Cicero Lu

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Education

- Ph.D. in Astronomy and Astrophysics, Johns Hopkins University 2017 – 2023
- M.A. in Physics and Astronomy, Johns Hopkins University 2017 – 2019
- B.S. in Physics, University of California, Los Angeles 2013 – 2017

Employment

NSF's NOIRLab/Gemini Observatory 2023-present
Johns Hopkins University, Graduate Research Assistant 2020-2023
Johns Hopkins University, Graduate Teaching Assistant 2017-2020
UCLA, Undergrad Research Assistant 2015-2017
UCLA BruinsOnline Tech Consultant 2014-2015

Fellowship & Awards

NASA FINESST Fellowship 2021-2023
AAS Chambliss Poster Honorable Mention 06/2020
HopHacks Hackathon 3rd Place (out of 70 Teams) 09/2020
UCLA Undergraduate Research Scholars Program Scholarship Sept. 2016 - July 2017
UCLA Honors 2015 Summer Research Scholarship Jun. 2015 - Sept. 2015
Mathematical Contest in Modeling, Meritorious Winner (Top 10% globally) 03/2015

Publication

Lu, C. X., Mittal, T., Chen, C.H., Watson, D. M., Lisse, C. M., Sargent, B. A., Green, J. D., Rebollido, I., Hines, D.C., "Sequencing Silicates in the IRS Debris Disk Catalog I: Methodology for Unsupervised Clustering", 2024, in Prep

Worthen, K., Chen, C. H., Law, D. R., **Lu, C. X.**, Hoch, K., Chai, Y., Sloan, G. C., Sargent, B. A., Kammerer, J., Hines, D. C., Rebollido, I., Balmer, W., Perrin, M. D., Watson, D. M., Pueyo, L., Girard, J. H., Lisse, C. M., Stark, C. C., "MIRI MRS Observations of β Pictoris. I. The Inner Dust, the Planet, and the Gas", ApJ, 964, 2, 168

Worthen, K., Chen, C. H., Brittain, S. D., **Lu, C. X.**, Rebollido, I., Brennan, A., Matrà, L., Melis, C., Delgado, T., Roberge, A., Mazoyer, J., "Vertical Structure of Gas and Dust in Four Debris Disks", ApJ, 962, 2, 166

Rebollido, I., Stark, C. C., Kammerer, J., Perrin, M. D., Lawson, K., Pueyo, L., Chen, C. H., Hines, D., Girard, J. H., Worthen, K., Ingerbretsen, C., Betti, S., Clampin, M., Golimowski, D., Hoch, K., Lewis, N. K., **Lu, C. X.**, van der Marel, R. P., Rickman, E., Seager, S., Soummer, R., Valenti, J. A., Ward-Duong, K., Mountain, M. C., "JWST-TSTHigh Contrast: Asymmetries, Dust Populations, and Hints of a Collision in the β Pictoris Disk with NIRCam and MIRI", AJ, 167, 2, 69

Janson, M., Patel, J., Ringqvist, S. C., **Lu, C. X.**, Rebollido, I., Lichtenberg, T., Brandeker, A., Angerhausen, D., Noack, L., "Imaging of exocomets with infrared interferometry", A&A, 671, A114

Lu, C. X., Chen, C.H., Sargent, B. A., Watson D.M., Lisse C. M., Green J. D., Sitko M., Mittal T., Rebollido I., Hines D.C., Werner M. W., Stapelfeldt K.R. "Trends in Silicates in the β Pictoris disk", 2022, ApJ, 933, 54

Lu, C. X., Schlaufman, K.C. and Cheng, S. "Small Planet Occurrence Increases with Metallicity for Late-type Dwarf Stars in the Kepler Field and Its Implications for Planet Formation", 2020, AJ, 160, 253

Lu, C. X. and Naoz, S. "Supernova Kicks in Hierarchical Triple Body Systems", 2019, MNRAS, 484, 1506

Kilpatrick, C D.; Foley, R. J.; Abramson, L. E.; Pan, Y.; **Lu, C. X.** et al. "On the Progenitor of the Type IIb Supernova 2016gkg", 2017, MNRAS, 465, 4650

Successful Proposals & Grants

- Gemini Fast Turnaround Program GS-2024A-FT-202 2024A
  "*A First Attempt to Characterize the Volatile Emission Signatures in a Debris Disk*", **PI: C. X. Lu**, **Co-Is**: I. Rebollido, C. H. Chen, S. Brittain, K. Worthen, T. Beck, J. Najita
- JWST Cycle 3 Guest Observer Program (ID: 5390) 2024
  "*HD 131488: A Unique Laboratory to Probe Volatile Transportation Mechanism in the Epoch of Terrestrial Planet Formation*", **PI: C. X. Lu**, **Co-Is**: I. Rebollido, C. H. Chen, S. Brittain, K. Worthen, T. Beck, J. Najita, K. France, M. D. Perrin, A. Moro-Martin, A. Roberge, E. Farina, S. Betti, L. Matra, J. Debes, J. Blakeslee
- JWST Cycle 2 Guest Observer Program (ID: 3153) 2023
  "*Why do some 50 Myr old stars still accrete?*", PI: F. Long, **Co-Is**: S. Andrews, A. Banzatti, D. Harsono, G. Herczeg, **C. X. Lu**, I. Pascucci, K. Pontoppidan, D. Wilner, C. Xie
- NASA IRTF Observing Program, **PI: C. X. Lu** 2023A
  "*Characterizing the Planetary Architecture for the Youngest Transiting Exoplanet in a Disk*", A half night, April, 2023
- European Southern Observatory Very Large Telescope (VLT), P111 , **PI: C. X. Lu** 2023
  "*Do exocomets release dust? Probing Properties of Terrestrial-Temperature Dust Grains in a Debris Disk with Exocomets*"
- Future Investigators in NASA Earth and Space Science and Technology (FINESST) 2021-2023
  "*Sequencing Dusty Disk Spectra: A Non-Parametric, Systematic Analysis Revealing the Relationships Between Disks and their Host Stars*", PI: C. Chen, FI: **C. X. Lu**($90,000 USD)
- JWST Cycle 1 Guest Observer Program (ID: 2053) 2021
  "*Search for NIR gas in debris disks. Is there a water delivery mechanism?*", PI: I. Rebollido, **Co-Is**: C. Chen, J. Debes, **C. X. Lu**, A. Moro-Martin, M. Perrin, A. Roberge
- STScI Director's Research Fund 11/2020 – 12/2021
  "*Does Fomalhaut Have an Icy Kuiper Belt?*", **Co-I**($70,000 USD) (**C. Lu wrote the Science Justification for this proposal.**)
- STScI Director's Research Fund, "*Silicate Mapping in Debris Disks*", **Co-I** ($70,000 USD) 11/2019 – 1/2021
- Spitzer Director's Discretionary Time 2019
  "*The First Young Transiting Planet: Exoplanet or Starspot*", **Co-I (Science PI)**, Approved by TAC, not executed due to target duplication in queue
- IAU Travel Grant for IAU Symposium No. 353 ($500 USD) 2019

Observing Experience

- Gemini-Northen Observatory, Queue Observing, 12 nights 2023-present
- NASA Infrared Telescope Facility (IRTF) SpeX, 2 half nights April 2023
- NASA Infrared Telescope Facility (IRTF) iSHELL, 2 half nights Feb 2022
- NASA IRTF SpeX, 1 half night Feb 2021

- NASA Keck Telescope, 2 nights — Aug 2016

Selected Talks

- "*Discovery of NIR Gas Emission with JWST/NIRSpec in a Debris Disk*"
  - Dust Devils - Debris Disks in the Sonoran Desert — Mar. 26, 2024
  - Invited Talk at El Centro de Astrobiología (CAB) Seminar, Madrid, — Feb. 20, 2024

- "*Constraining the Composition and Formation Processes of Planet Building Blocks: From Spitzer to JWST*"
  - Penn State, Center of Exoplanets and Habitable Worlds, Lunch Seminar (Invited) — Sept 12, 2022
  - University of Michigan, Star and Planet Formation Group Meeting — Sept 20, 2022
  - UCLA Tuesday Lunch Seminar Series — Oct 18, 2022
  - Flatiron CCA Planet Formation Group Meeting — Nov 4, 2022
  - Institute for Advanced Study AstroCoffee — Nov 7, 2022
  - Princeton Exoplanet Group Discussion — Nov 7, 2022
  - Caltech IPAC Seminar — Nov 9, 2022
  - NSF NOIR Lab FLASH Talk — Nov 18, 2022
  - Carnegie Earth and Planetary Laboratory Planets Reading group — Nov 29, 2022

- "*Trends in Silicates in the β Pictoris Debris Disk*"
  - Gordon Research Seminar — June 10, 2023
  - AAS 240 — June 22, 2022
  - European Astronomical Society Annual Meeting — June 29 2021
  - STScI Star and Planet Formation Research Group Meeting — Aug. 12, 2020

- "*Probing Planet Formation with Planet Occurrence as a Function of Metallicity*"
  - Exoplanets IV — May 2, 2022
  - Cheaspeake Bay Area Exoplanet Meeting (CHEXO) — Dec. 11, 2020
  - Chesapeake Bay Area Exoplanet Meeting — May 10, 2019

- "*Multiple Views of Planet Formation*"
  UCLA Smadar Naoz Research Group Meeting (Invited Talk) — June 18, 2020

Selected Posters

- "*Sequencing Debris Disks Spectra: Relationships between Disks and their Host Stars*", *Gordon Research Conference*, Mount Holyoke — Jun 11 – 16, 2023
- "*Trends in Silicates in the β Pictoris Debris Disk*", *Exoplanet IV*, Las Vegas — May 1 – 6, 2022
- "*Constraining the Role of Collisions in the β Pictoris Debris Disk*", *AAS 237*, online — Jan 11–15, 2021
- "*Constraining the Role of Collisions in the β Pictoris Debris Disk*", *AAS 236*, online — June 1–3, 2020
- "*M Dwarf Planet Occurrence Rates Depend on Metallicity at all Planet Radii*", *Extreme Solar System IV*, Reykjavik, Iceland — Aug. 2019
- "*Supernova Kicks in Hierarchical Triple Systems*", *IAU 353, Galactic Dynamics in the Era of Large Surveys*, Shanghai, China — Jun. 2019
- "*Probing Planet Formation with Planet Occurrence as a Function of Metallicity*", *Sagan Summer Workshop*, Pasadena, CA — 2018

Services & Outreach

Executive Secretary, NASA Exoplanet Research Program (XRP) Panel — (Year Redacted)
AAS Chambliss Poster Judge — 2021 – 2022

JHU P&A Graduate Student Wine & Cheese Talks Cordinator 2020 – 2022
JHU P&A Graduate Student Association International Student Representative 2020 – 2022
JHU Exoplanet Journal Club Organizer 2019 – 2020
JHU & STScI Liaison 2018 – 2019
JHU Outreach Volunteer 2017 – 2019
UCLA Conference for Undergraduate Women in Physics Group Organizer 2015 – 2017
UCLA Astronomy Live! Outreach Volunteer 2015 – 2017

Mentoring

Angela Claibourn, UHH Undergraduate Spring 2024 – Present
JHU Mentor-Mentee Program for Incoming Grad Students 2017 – 2023
Yunxuan Li, JHU Undergraduate, Spring 2022–Present
Melodie Sloneker, UCLA Undergraduate, Spring & Summer 2020
Casey Cohen, JHU Undergraduate, Spring 2020

Teaching

Teaching Assistant, *Numerical Methods for Physicists* Spring 2019
Teaching Assistant, *Planets, Life and the Universe* Fall 2018, 2019
Teaching Assistant, *General Physics for Biology Majors II* Spring 2018
Instructor, *General Physics Laboratory II* Spring 2018
Instructor, *General Physics Laboratory I* Fall 2017
Teaching Assistant, *General Physics for Physical Sciences Majors* Fall 2017

Media Coverage

"*Seeing into Space*", Podcast Interview by WORLD 07/14/2022
"*NASA's Webb to Explore a Neighboring, Dusty Planetary System*", An Interview for the James Webb Guaranteed Time Observations (GTO) and General Observers (GO) programs Research team, jointly featured on NASA Goddard News and Space Telescope Webb News 07/21/2021