Curriculum Vitae

Contact Info **Xinyu (Cicero) Lu** Email: cicerolu@jhu.edu
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Research Interests Studying **planet formation** through **debris disks** using spatially-resolved infrared spectroscopy and **exoplanets** demographics with big surveys.

Education

Ph.D. in Physics and Astronomy, Johns Hopkins Expected 05/2023
M.A. in Physics and Astronomy, Johns Hopkins University 05/2019
B.S. in Physics, University of California, Los Angeles 06/2017

Selected Research Experience

Spatially-resolved Spectroscopy for debris disks JHU
Research Assistant, PI: Christine Chen 09/2019 - present
• Modeling full slit extraction and spatially-resolved spectra of the *IRS* β-Pic disk with various compositions, shape distributions and stoichiometry
• Corrected for the PSF and detector systematics such as fringing, RSRF
• Applying MCMC and Particle Swarm Optimization

Small planet occurrence around late-type dwarfs in *Kepler* JHU
Research Assistant, PI: Kevin Schlaufman 09/2017 - 05/2019
• Calculate small planet occurrence with KeplerPORTS with *Kepler* DR25
• Our calculated planet formation efficiency prefers planetesimal accretion

Searching for planets around metal-poor stars with *TESS* JHU
Research Assistant, PI: Kevin Schlaufman 01/2019 - 03/2019
• Built a transit searching pipeline with Box least square
• Characterize planet detection pipeline completeness

Supernova Kicks in Hierarchical Triple System UCLA
Undergraduate Researcher, PI: Smadar Naoz 11/2014 - 05/2018
• Computed constraints on maximum SN kicks to disrupt a triple
• Predicted the post SN survival rate of BH-Neutron Star-Stellar companion triple system and Gravitational Wave timescale for BH-BH Stellar companion triple system

Publications

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", AJ, 160, 253

Lu, C. X. and Naoz, S. "Supernova Kicks in Hierarchical Triple Body Systems", 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", MNRAS, 465, 4650

Selected honors & awards

Chambliss Astronomy Achievement Student Award Competition for graduate students Honorable Mention, AAS 236, June 1-3
UCLA Undergraduate Research Scholars Program Scholarship: Awarded Scholarship by Van Tree Foundation, Sept. 2016 - July 2017
UCLA Honors 2015 Summer Research Scholarship Recipient: Awarded Stone Scholarship fund for research, Jun. 2015 - Sept. 2015

Selected Oral Presentation

Contributed Talk "*Probing Planet Formation with Planet Occurrence as a Function of Metallicity*", Cheaspeake Bay Area Exoplanet Meeting (CHEXO), Dec. 11th, 2020 [Slides]

Contributed Talk, "*New Discoveries in β Pictoris Debris Disk with the Spitzer IRS Spectra*, STScI Star and Planet Formation Research Group Meeting, Aug. 12th, 2020

Invited Talk, "*Multiple Views of Planet Formation*", UCLA Smadar Naoz Research Group Meeting, June 18th, 2020

Selected Poster Presentation

Constraining the Role of Collisions in the β Pictoris Debris Disk, *AAS 237*, online, Jan 11–15, 2021 [Poster]

Constraining the Role of Collisions in the β Pictoris Debris Disk, *AAS 236*, online, June 1–3, 2020 [Poster]

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

Successful Proposals & Grants

STScI Director's Research Fund, *Does Fomalhaut Have an Icy Kuiper Belt?*, **Co-I** (Lu wrote the Science Justification for this proposal.), 20 November 2020 – 31 December 2021

STScI Director's Research Fund, *Silicate Mapping in Debris Disks*, **Co-I**, 1 November 2019 – 31 January 2021

Spitzer Director's Discretionary Time, *The First Young Transiting Planet: Exoplanet or Starspot*, **Co-I** (Science PI), Approved by Reviewer, not executed due to target duplication in queue, 2019

IAU Travel Grant for IAU Symposium No. 353, April 2nd, 2019