Le-Chris Wang
Curriculum Vitæ

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EDUCATION

Aug. 2021 – May 2025	**Johns Hopkins University**, *Baltimore, MD, USA* BSc in Computer Science, Physics, and Applied Mathematics & Statistics GPA: 3.95/4.00 Minor: Mathematics Grad courses taken: 9

RESEARCH PROJECTS

Jan. 2022 – present	**Schlaufman Exoplanet Group**

Advisor: Prof. Kevin C. Schlauman, Dr. Matthew S. Clement

- **Unresolved Binary Star Rejection**: Assembled photometry for every star confirmed as an open cluster member by Gaia. Designed algorithms that fit Hertzsprung–Russell diagrams and reject unresolved binary stars.

- **Stellar Elemental Abundance and Planet Formation**: Simulated the mass evolution of stellar surface convective zone using Modules for Experiments in Stellar Astrophysics (MESA). Showed there is no relationship between stellar photospheric elemental abundance pattern and planet formation.

- **Planet Formation with N-body Simulation**:
  - investigate the relative importance between pebble accretion and planetesimal accretion to the outcomes of planet formation directly with numerical simulations and exoplanet demographics with Mercury6.
  - investigate the formation pathways for the TOI-700 system with Mercury6.
  - investigate the planet formation outcomes for MK-dwarf systems with varying disk mass, which is then combined with a volatile growth model to track planets' atmospheric and mantle composition of H_2O, N_2, and CO_2.

May 2022 – Present	**Sing Exoplanet Group**

Advisors: Prof. David K. Sing, Zafar Rustamkulov

- **JWST data reduction pipeline development**: Optimized JWST NIRSpec data reduction pipeline using nested sampling to extract transit light curves; reduced the light curve extraction runtime by an order of magnitude. Integrated the capability to reduce JWST NIRISS/SOSS data to the team's JWST data reduction pipeline originally designed for NIRSpec.

- **Transmission Spectroscopy**: Extracted transmission spectra for WASP-96b, HAT-P-14b, and K2-18b. Combined transmission spectrum from SOSS with that derived from various space-based and ground-based observatories and retrieved atmospheric properties.

Awards & fellowships

2024	**IDIES Summer Student Fellowship**
	$6,000, JHU, competitive research fellowship awarded to 5 undergraduates conducting data-intensive research.
2024	**ΣΠΣ Physics Honor Society**
	Awarded for outstanding academic achievement in physics and astronomy.
2023	**Summer Provost's Undergraduate Research Award**
	$6,000, JHU, competitive research fellowship (36 out of 400+ applicants).
2023	**Dean's ASPIRE Grants**
	$2,474, JHU, competitive research fellowship; awarded to 10 undergraduates per year.
2022	**Hophacks 2nd place**
	Hopkins's premier 36-hour hackathon. 2/40. $512 prize.
2022	**Quest2Learn Most Innovative Platform to Help with Learning**
	Awarded for creating an application that helps with learning.
2022	**Bloomberg Distinguished Professor Fellowship**
	$6,000, JHU, competitive research fellowship; awarded to 2 physics undergraduates.
2021–present	**Dean's List**
	Excellence in academics. Awarded every semester (7/7).

Publications

First-authored/equivalent Publications

3. Liu, R.*, **Wang, L. C.**, Rustamkulov, Z., & Sing, D. K., "Unveiling the atmosphere of the super-Jupiter HAT-P-14b with JWST NIRISS and NIRSpec" *Submitted to AJ* (*: Co-first author).

2. Gou, X.*, Pan, X.*, **Wang, L. C.**, "General Relativity Testing in Exoplanetary Systems " *IOP Conf. Ser.: Earth Environ. Sci.* (2021). (*: Equal contributions).

1. Zheng, Y., Wang, X., **Wang, L. C.*** et al., "Test of Bell's and Mermin's inequalities on Quantum Computer" *2020 2nd International Conference on Information Technology and Computer Application* (2020) (*: Corresponding Author).

Coauthoed Publications

2. Wang, G., incl. **Wang, L. C.**, "A Revised Density Estimate for the Largest Planet, HAT-P-67 b" *Submitted to AAS Journals.*

1. Chen, H., incl. **Wang, L. C.**, "A Palette of Water Inventories Assembled across Nascent TRAPPIST-1 Analog Planets" *Submitted to Nature Astronomy.*

Talks & Presentations

Oct. 2024	**Planet Formation with N-body Simulations**
	2024 IDIES Annual Symposium
April 2024	**FIREFLy-SOSS: Exoplanet Transit Light Curves Extraction Pipeline for JWST NIRISS-SOSS Observations**
	Departmental Undergraduate Research Showcase, Johns Hopkins University, MD
April 2024	**Is The Formation Of Planets The Cause of Solar Atypical Abundance Pattern?**
	Johns Hopkins University DREAMS Symposium
April 2024	**Characterization of Cloud-free Hot-Saturn WASP-96b with Joint JWST, Hubble, VLT, and Spitzer Transmission Spectroscopy**

Jan. 2024	*Johns Hopkins University DREAMS Symposium* **Elemental Abundance Trends with Condensation Temperature are Unrelated to Planet Formation**
	243rd Meeting of the American Astronomical Society, New Orleans, LA
June 2023	**Elemental Abundance Trends with Condensation Temperature are Unrelated to Planet Formation**
	Origins of Solar Systems Gordon Research Conference, Mount Holyoke College, MA
June 2023	**Stellar Elemental Abundance Patterns: Implications for Planet Formation**
	No-PhD Journal Club, Johns Hopkins University, MD
Aug. 2022	**Optimizing JWST BOTS Transit Light Curve Fitting**
	The Center for Astrophysics Research Experience, Johns Hopkins University, MD

Telescope Allocations

2024 Q4	**Apache Point Observatory, ARCSAT, 14 nights**
	Complementary Flare Monitoring of the Enigmatic Triple Red Dwarf LTT 1445ABC PIs: Rustamkulov, Z., Bennett, K., CoIs incl. **Wang, L. C.**
2024 Q3	**Apache Point Observatory, ARCTIC, 3 nights**
	Synergistic Cool Star Monitoring: Characterization of Starspots PIs: Rustamkulov, Z., Allen, N., **Wang, L. C.**, Wang, G.

Teaching appointments

2024 Spring	Teaching Assistant, AS.171.108 General Physics II (Undergraduate, 23 students)
2023 Fall	Teaching Assistant, AS.171.107 General Physics I (Undergraduate, 46 students)
2023 Spring	Teaching Assistant, AS.171.101 General Physics I (Undergraduate, 46 students)
2022 Fall	Teaching Assistant, AS.171.101 General Physics I (Undergraduate, 23 students)

Skills

Programming	Python, C/C++, Java, Assembly, Fortran, Matlab, R, HTML, CSS, JavaScript, Bash, rust, go, React, flask, Node.js
Data science	sql, MySQL, PostgreSQL, Pytorch, TensorFlow, OpenCV, docker
Astronomy Softwares	DS9, Siril, MESA (stellar structure), Rebound (N-body), Mercury (N-body), petitRADTRANS (atmospheric retrieval)
Observation Experience	The Morris W. Offit Telescope (half-meter telescope at JHU), ARC 3.5m telescope at Apache Point Observatory
Languages	English, Chinese, French
Other	LaTeX, Git, Slurm, Mathematica, JupyterLab, Adobe Lightroom, Adobe Photoshop, Blender, Soccer, A Cappella, Marathon