Christopher E. O'Connor **October 2021**

CONTACT INFORMATION

Mailing Address:
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EDUCATION

Cornell University

Ph.D. Candidate, Astronomy and Space Sciences — Expected: June 2024
– Advisor: Prof. Dong Lai
M.S., Astronomy and Space Sciences — December 2020

University of California, Los Angeles

B.S., Astrophysics — June 2018
Cum laude, Highest Honors in Physics and Astronomy
– Thesis: *The Effect of Giant Planets on the In Situ Assembly of Compact Planetary Systems*
– Advisor: Prof. Brad Hansen

RESEARCH INTERESTS

Theoretical astrophysics: Diverse topics, including: Astrophysical dynamics. Stellar and planetary astrophysics. Compact objects and gravitational wave sources. Milky Way Galactic center.

Observational exoplanet science: Detection and characterization of extrasolar planetary systems, especially around evolved stars and white dwarfs. Synergies with upcoming or previous surveys using transit, RV, microlensing, and astrometric techniques.

Theoretical physics: Nonlinear dynamics and chaos, particularly with applications in astrophysical systems.

RESEARCH EXPERIENCE

Cornell University
Graduate Research — 2019 – pres.
Advisor: Prof. Dong Lai

University of California, Los Angeles
Undergraduate Research and Honors Research — 2016 – 2018
Advisors: Prof. Brad Hansen, Prof. Smadar Naoz

Galactic Center Group Research Internship — 2016
Advisors: Dr. Shoko Sakai, Prof. Andrea Ghez

HONORS & AWARDS

NASA Space Grant Graduate Fellowship — 2021

NSF GRFP Honorable Mention — 2020

Cornell University First-Year Graduate Student Fellowship — 2018

Charles Geoffrey Hilton Award, UCLA Physics and Astronomy — 2018
Top student in graduating class of astrophysics majors.

Highest Departmental Honors, UCLA Physics and Astronomy — 2018

Undergraduate Research Scholarship, UCLA — 2017

Dean's Honors List, UCLA — 2014 – 2018

REFEREED PUBLICATIONS

As lead author:

[1] **C. E. O'Connor**, B. Liu, D. Lai. Enhanced Lidov–Kozai migration and the formation of the transiting giant planet WD 1856+534 b. 2021, MNRAS, 501, 507–514. doi:10.1093/mnras/staa3723

[2] **C. E. O'Connor**, D. Lai. High-eccentricity migration of planetesimals around polluted white dwarfs. 2020, MNRAS, 498, 4005–4020. doi:10.1093/mnras/staa2645

[3] **C. E. O'Connor**, B. M. S. Hansen. Constraining planetary migration and tidal dissipation with coeval hot Jupiters. 2018, MNRAS, 477, 175–189. doi:10.1093/mnras/sty645

As co-author:

[4] S. Xu, et al. (including **C. E. O'Connor**). Gemini/GMOS transmission spectroscopy of the grazing planet candidate WD 1856+534 b. 2021, AJ, accepted. arXiv:2110.14106

Seminars & Conferences

[5] **C. E. O'Connor**, J. Teyssandier, D. Lai. Secular chaos in white-dwarf planetary systems. 52nd Annual Meeting of Division on Dynamical Astronomy, May 2021. (virtual meeting; contributed talk)

[6] **C. E. O'Connor**, B. Liu, D. Lai. Enhanced Lidov–Kozai migration and the formation of WD 1856 b.
- TRiple EvolutioN and DYnamics 3 (TRENDY-3) workshop, Northwestern University, March 2021. (virtual meeting; contributed talk)
- AAS Meeting 237, January 2021. (virtual meeting; contributed talk)
- Emerging Researchers in Exoplanet Science (ERES) symposium, Princeton University. May 2021. (virtual meeting; contributed talk; plenary session)

[7] **C. E. O'Connor**, D. Lai. High-e migration of planetesimals around polluted white dwarfs. 51st Annual Meeting of Division on Dynamical Astronomy, August 2020. (virtual meeting; contributed talk)

[8] **C. E. O'Connor**, B. M. S. Hansen. The perturbed assembly of compact planetary systems. AAS Meeting 233, Seattle, WA, January 2019. (contributed poster)

[9] **C. E. O'Connor**, B. M. S. Hansen. The perturbed assembly of compact planetary systems. Undergraduate Research Poster Day, UCLA, May 2018. (contributed poster)

[10] **C. E. O'Connor**, A. K. Gautam, S. Sakai, T. Do, A. M. Ghez, J. Lu, M. R. Morris, G. Witzel, B. Sitarski, S. Chappell. An enigmatic variable star in the backyard of Sgr A*. AAS Meeting 229, Grapevine, TX, January 2017. (contributed poster)

Observing Proposals

[1] Revealing the Atmospheric Composition of a White Dwarf Planet. JWST Cycle 1, **awarded** 13 hours, GO 2358 (PI: R.J. MacDonald).

Teaching Experience

Cornell University

Head Graduate Teaching Assistant
- Astronomy 1101: From New Worlds to Black Holes – introductory lecture course — Fall 2021

Graduate Teaching Assistant
- Astronomy 1102: Our Solar System – introductory lecture course — Spring 2020
  - Partial remote instruction due to COVID-19 pandemic
- Astronomy 4410: Experimental Astronomy – advanced laboratory course — Fall 2019

Service & Professional Development

Intergroup Dialogue for Graduate Students and Postdoctoral Scholars, Cornell University — June 2021
Participant in three-week summer course on communication and collaboration across cultural, social, and power differences.

Graduate and Professional Student Assembly, Cornell University — May 2020 – pres.
Held elected positions in Cornell's shared governance system.
- Voting Member for Division of Physical Sciences, Academic Years 2020-2021, 2021-2022
- Field Representative for Astronomy and Space Sciences, Academic Years 2020-2021, 2021-2022

Professional Memberships

American Astronomical Society, Division on Dynamical Astronomy
- Graduate Student Member — 2018 – pres.
- Junior Member — 2016 – 2018