

# Alexander P. Stephan

POSTDOCTORAL SCHOLAR  
Vanderbilt University

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## Research Interests

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**Multi-body Dynamics** Exoplanets · Binary & Triple Stars · Galactic Nuclei  
**Stellar Evolution** Planet Engulfment · Binary Mergers · Compact Object Formation  
**Theory and Computation** Focused on producing observable predictions

## Employment & Associations

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2023 -	<b>Postdoctoral Scholar</b>	Vanderbilt University	<i>Nashville, TN</i>
2021 - 2023	<b>OSU President's Postdoctoral Scholar</b>	The Ohio State University	<i>Columbus, OH</i>
2020 - 2023	<b>CCAPP Affiliate Fellow</b>	The Ohio State University	<i>Columbus, OH</i>
2020 - 2021	<b>Buckeye Prize Postdoctoral Fellow</b>	The Ohio State University	<i>Columbus, OH</i>

## Education

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2014 - 2020	<b>PhD in Astronomy &amp; Astrophysics</b>	University of California, Los Angeles	<i>Los Angeles, CA</i>
2014 - 2016	<b>M.S. in Astronomy</b>	University of California, Los Angeles	<i>Los Angeles, CA</i>
2010 - 2014	<b>B.A. in Physics with a Specialization in Astrophysics</b>	University of Chicago	<i>Chicago, IL</i>

## Awards

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2020	<b>Rodger Doxsey Travel Prize</b>	235th AAS Meeting	<i>Honolulu, HI</i>
2018	<b>Michael A. Jura Memorial Graduate Award</b>	University of California, Los Angeles	<i>Los Angeles, CA</i>
2014	<b>B.A. with General Honors, B.A. in Physics with Honors</b>	University of Chicago	<i>Chicago, IL</i>

## Students

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### Nathan Hughes

UNDERGRADUATE (CO-ADVISOR DAVID V. MARTIN)

• Hot Jupiter Formation · Binary Stars · White Dwarfs

*OSU, OH*

2023 -

### Andrew Miller

UNDERGRADUATE (CO-ADVISOR DAVID V. MARTIN)

• Binary stellar evolution · Population synthesis · Gravitational wave progenitors · led to paper with mentee as first author

*OSU, OH*

2022 - 2023

### Cheryl Wang

UNDERGRADUATE

• Gravitational wave events · Galactic Center · led to paper with mentee as first author

*UCLA, CA*

2019 - 2020

### Shelley Cheng

UNDERGRADUATE

• Triple star dynamics

*UCLA, CA*

2018 - 2020

### Isabella Goetting

UNDERGRADUATE

• Gas giant spin evolution · Star-planet interactions

*UCLA, CA*

2017 - 2018

## Paul Denham

UNDERGRADUATE

- Multi-planet systems · Binary stars · Secular dynamics · [led to paper with mentee as first author](#)

UCLA, CA

2017 - 2018

## Joseph Guzman

REU STUDENT

- Triple star dynamics

UCLA, CA

2016

## Teaching

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2014	<b>ASTR 3: Nature of the Universe</b>	Teaching Assistant	UCLA
2015	<b>ASTR 5: Life in the Universe</b>	Teaching Assistant	UCLA
2016	<b>PHYS 17: Elements of Quantum Mechanics and Statistical Mechanics</b>	Teaching Assistant	UCLA
2015	<b>PHYS 18L: Modern Physics Laboratory</b>	Teaching Assistant	UCLA
2017	<b>PHYS 105A: Analytical Mechanics</b>	Teaching Assistant	UCLA
2018	<b>ASTR 273: Diffuse Matter in Space</b>	Special Reader	UCLA

## Leadership, Service, Outreach & DEI

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2022 - 2023	<b>Astronomy-CCAPP Postdoc Committee</b>	Astronomy Representative	OSU
2022 - 2023	<b>OSU Summer Outreach</b>	Bexley Public Library Talks · COSI Science Festival	Columbus, OH
2016 - 2020	<b>Naoz Research Group</b>	Weekly Meeting Coordinator	UCLA
since 2016	<b>Student Mentoring</b>	Mentoring in particular students from underrepresented groups	UCLA & OSU
2014 - 2020	<b>Astronomy Live! (Outreach Group)</b>	Co-Leader & Volunteer	UCLA
2014 - 2020	<b>Exploring Your Universe (Science Fair Event)</b>	Organization Committee Member & Volunteer	UCLA
since 2014	<b>DEI Meetings &amp; Seminars</b>	Participation & Striving for effective Allyship	UCLA & OSU
since 2014	<b>Journal Referee</b>	ApJ/AJ · A&A · MNRAS	
	<b>Membership</b>	AAS	

## CONFERENCE TALKS & SEMINARS

2023	<b>TASC7/KASC14</b>	<i>Honolulu, HI</i>
2023	<b>241st AAS Meeting</b>	<i>Seattle, WA</i>
2022	<b>GLEAM 2022</b>	<i>Columbus, OH</i>
2022	<b>240th AAS Meeting</b>	<i>Pasadena, CA</i>
2022	<b>Exoplanets IV</b>	<i>Las Vegas, NV</i>
2021	<b>TESS Science Conference II</b>	<i>Virtual</i>
2021	<b>Triple Evolution &amp; Dynamics 3</b>	<i>Virtual</i>
2020	<b>CCAPP Seminar</b>	<i>Columbus, OH</i>
2020	<b>51th Annual DDA Meeting</b>	<i>Virtual</i>
2020	<b>University of Nevada, Las Vegas</b> Physics & Astronomy Colloquium	<i>Las Vegas, NV</i>
2020	<b>235th AAS Meeting</b> Dissertation Talk	<i>Honolulu, HI</i>
2019	<b>Pennsylvania State University</b> Penn State CEHW seminar   Invited Talk	<i>State College, PA</i>
2019	<b>University of Chicago</b> Exoplanet seminar	<i>Chicago, IL</i>
2019	<b>Northwestern University</b> Theory seminar	<i>Chicago, IL</i>
2019	<b>University of Maryland</b> Friday seminar	<i>Chicago, IL</i>
2019	<b>Princeton University</b> Exoplanet Lunch seminar	<i>Princeton, NJ</i>
2019	<b>Columbia University</b> Thursday seminar	<i>New York, NY</i>
2019	<b>Yale University</b> Galaxy Lunch seminar & Exoplanet seminar	<i>New York, NY</i>
2019	<b>MIT</b> Kavli Institute BBL seminar	<i>Boston, MA</i>
2019	<b>Harvard University</b> ITC seminar	<i>Boston, MA</i>
2019	<b>50th Annual DDA Meeting</b>	<i>Boulder, CO</i>
2018	<b>Japanese-German Meeting on Exoplanets and Planet Formation</b> Invited Talk	<i>Edesheim, GER</i>
2018	<b>Triple Evolution &amp; Dynamics 2</b>	<i>Leiden, NL</i>
2018	<b>Exoplanets Orbiting Hot Stars</b> Invited Talk	<i>Nashville, TN</i>
2017	<b>ExSoCal</b>	<i>Pasadena, CA</i>
2017	<b>Formation and Dynamical Evolution of Exoplanets</b>	<i>Aspen, CO</i>

# Publications

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17 peer reviewed papers

8 first author papers

3 papers with supervised students highlighted in red · all with student first author

500+ total citations 100+ citations on most cited first-author paper

News articles on 4 papers New Scientist · AAS Nova (x2) · Nature · Physics Today

All papers listed are published, accepted or under review (none are “in prep”)

## PUBLICATION LIST

### True and False Unicorns: Simulated Rates of Dark Massive Companions to Bright Stars

*Submitted to MNRAS*

MILLER, A M · STEPHAN, A P · MARTIN, D V

### Gasing Pangkah I: Asteroseismic Identification and Characterisation of a Rapidly-Rotating Engulfment Candidate

*Submitted to ApJ*

ONG, J M J · HON, M T Y · SOARES-FURTADO, M · STEPHAN, A P · ET AL.

### Exoplanet Nodal Precession induced by Rapidly Rotating Stars: Impacts on Transit Probabilities and Biases

*ApJ*

STEPHAN, A P · GAUDI, B S

2023

### Dynamical Evolution of White Dwarfs in Triples in the Era of Gaia

*ApJ*

SHARIAT, C · NAOZ, S · HANSEN, B M S · ANGELO, I · MICHAELY, E · STEPHAN, A P

2023

### Nodal Precession and Tidal Evolution of Two Hot Jupiters: WASP-33 b and KELT-9 b

*ApJ*

STEPHAN, A P · WANG, J · CAULEY, P W · GAUDI, B S · ILYIN, I · JOHNSON, M C · STRASSMEIER, K G

2022

### Kepler-1656b’s Extreme Eccentricity: Signature of a Gentle Giant

*AJ*

ANGELO, I · NAOZ, S · PETIGURA, E · MACDOUGALL, M · STEPHAN, A P · ISAACSON, H · HOWARD, A W

2022

### Spectroscopy of TOI-1259 - an unpolluted white dwarf companion to a transiting inflated warm Saturn

*MNRAS*

FITZMAURICE, E · MARTIN, D V · RODRÍGUEZ MARTÍNEZ, R · VALLELY, P · STEPHAN, A P · BOLEY, K · ET AL.

2022

### Giant Planets, Tiny Stars: Producing Short-period Planets around White Dwarfs with the Eccentric Kozai-Lidov Mechanism

*ApJ*

STEPHAN, A P · NAOZ, S · GAUDI, B S

2021

### TOI-1259AB - a gas giant with 2.6% deep transits and a bound white dwarf companion

*MNRAS*

MARTIN, D V · EL-BADRY, K · [...] · STEPHAN, A P · ET AL.

2021

### Gravitational-wave Signatures from Compact Object Binaries in the Galactic Center

*ApJ*

WANG, H · STEPHAN, A P · NAOZ, S · HOANG, B-M · BREIVIK, K

2021

### Eating Planets for Lunch and Dinner: Signatures of Planet Consumption by Evolving Stars

*ApJ*

STEPHAN, A P · NAOZ, S · GAUDI, B S · SALAS, J M

2020

**A population of dust-enshrouded objects orbiting the Galactic black hole**

CIURLO, A · CAMPBELL, R D · MORRIS, M R · DO, T · GHEZ, A M · [...] · **STEPHAN, A P**

*Nature*

2020

**The Fate of Binaries in the Galactic Center: The Mundane and the Exotic**

**STEPHAN, A P** · NAOZ, S · GHEZ, A M · MORRIS, M R · CIURLO, A · DO, T · ET AL.

*ApJ*

2019

**Unseen companions of V Hya inferred from periodic ejections**

SALAS, J M · NAOZ, S · MORRIS, M R · **STEPHAN, A P**

*ApJ*

2019

**Hidden planetary friends: on the stability of two-planet systems in the presence of a distant, inclined companion**

**DENHAM, P** · NAOZ, S · HOANG, B-M · **STEPHAN, A P** · FARR, W

*MNRAS*

2019

**A-type Stars, the Destroyers of Worlds: The Lives and Deaths of Jupiters in Evolving Stellar Binaries**

**STEPHAN, A P** · NAOZ, S · GAUDI, B S

*AJ*

2018

**Throwing Icebergs at White Dwarfs**

**STEPHAN, A P** · NAOZ, S · ZUCKERMAN, B

*ApJL*

2017

**Merging Binaries in the Galactic Center: The eccentric Kozai-Lidov mechanism with stellar evolution**

**STEPHAN, A P** · NAOZ, S · GHEZ, A M · WITZEL, G · SITARSKI, B N · DO, T · KOCISIS, B

*MNRAS*

2016

**Formation of Black Hole Low-mass X-Ray Binaries in Hierarchical Triple Systems**

NAOZ, S · FRAGOS, T · GELLER, A · **STEPHAN, A P** · RASIO, F A

*ApJ*

2016