

# David V. Martin

NASA SAGAN FELLOW

The Ohio State University

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## Summary

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**Students Supervised** 4 PhD · 1 Masters · 3 Undergrad · 1 Post-Bacc/Undergrad  
**Papers** 37 total (h-index 16) · 14 first author (h-index 10) · 4 supervised student led  
**Observing** 470+ ground nights awarded · 12 space programs · BEBOP founder · EBLM leader  
**Funding** \$190,000 as PI · \$360,000 total  
**Talks** 20 invited colloquia · 19 conference talks · 30+ teaching/outreach

## Employment

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2021 - 2024 **NASA Sagan Fellow** The Ohio State University *Columbus, OH*  
2020 - 2021 **Fellow of the Swiss National Science Foundation & Buckeye Fellow** The Ohio State University *Columbus, OH*  
2017 - 2019 **Fellow of the Swiss National Science Foundation** University of Chicago *Chicago, IL*

## Education

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2013 - 2017 **PhD in Astronomy & Astrophysics** Université de Genève *Geneva, CH*  
2012 **Honours in Astronomy** Monash University *Melbourne, AUS*  
2008 - 2011 **Bachelor of Science Advanced** Monash University *Melbourne, AUS*

## Students

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### GRADUATE

**Alison Duck** *Ohio State, OH*  
PHD (PRIMARY ADVISOR B. SCOTT GAUDI) *2020 - 2023*

- M-dwarf fundamental parameters · Eclipsing binaries
- Duck, Martin+ (2022) · Martin, Armitage, Duck+ (2022)

**Romy Rodríguez Martínez** *Ohio State, OH*  
PHD (PRIMARY ADVISOR B. SCOTT GAUDI) *2022 - 2023*

- White dwarfs · Flares · M-dwarfs
- Fitzmaurice, Martin, Rodríguez Martínez+ (2022) · Duck+ incl Rodríguez Martínez (2022) · Martin+ incl Rodríguez Martínez (2022)

**Kiersten Boley** *Ohio State, OH*  
PHD (PRIMARY ADVISOR JI WANG) *2022 - 2023*

- Transiting exoplanets · White dwarfs
- Fitzmaurice+ incl Boley (2022)

**Ritika Sethi** *IISER Berthampur, India*  
MASTERS *2022 - 2023*

- Stellar rotation and ages · Tidal physics · Flares
- Duck+ incl Sethi (2022) · Martin+ incl Sethi (2022)

**Vedad Kunovac Hodžić** *Chicago, IL*  
PHD (FULLBRIGHT SCHOLAR, PRIMARY ADVISOR AMAURY TRIAUD) *2019 - 2020*

- Spin-orbit obliquity · Exoplanet discovery/confirmation
- Kunovac Hodžić, Triaud, Martin+ (2020) · Martin, El-Badry, Kunovac Hodžić+ (2021)

## UNDERGRADUATE

### Tayt Armitage

UNDERGRADUATE (CO-ADVISOR ROMY RODRÍGUEZ MARTÍNEZ)

- Flares · M-dwarf fundamental parameters
- Martin, Armitage+ (2022) · Duck, Martin, Armitage+ (2022)

Ohio State, OH

2022 - 2023

### Andrew Miller

UNDERGRADUATE (CO-ADVISOR ALEXANDER STEPHAN)

- Binary stellar evolution · Population synthesis · Gravitational wave progenitors

Ohio State, OH

2022 - 2023

### Evan Fitzmaurice

UNDERGRADUATE/POST-BACC

- Planet formation · Celestial mechanics · Circumbinary planets · White dwarfs
- Fitzmaurice, Martin & Fabrycky (2022) · Fitzmaurice, Martin+ (2022) · Martin & Fitzmaurice (2022)

Ohio State, OH

2020 - 2022

### Hannah Parsons

UNDERGRADUATE

- Circumbinary planets · Kepler photometry

Ohio State, OH

2021

## References

<b>B. Scott Gaudi</b>	Postdoc Host · gaudi.1@osu.edu	Ohio State, OH
<b>Dan Fabrycky</b>	Postdoc Host · fabrycky@uchicago.edu	Chicago, IL
<b>Stéphane Udry</b>	PhD Advisor · stephane.udry@unige.ch	Geneva, CH
<b>Amaury Triaud</b>	Collaborator · a.triaud@bham.ac.uk	Birmingham, UK
<b>Rosemary Mardling</b>	Honours Advisor · rosemary.mardling@monash.edu	Monash, AUS

## Grants

2022	<b>EBLM M-dwarf Fundamental Parameters</b>	TESS Cycle 5 (GO5024) · Principal Investigator	\$70,000
2021	<b>EBLM M-dwarf Fundamental Parameters</b>	TESS Cycle 4 (GO4157) · Principal Investigator	\$70,000
2021	<b>Circumbinary Planets</b>	TESS Cycle 4 (GO4058) · Collaborator (PI: Kostov)	\$70,000
2020	<b>Circumbinary Planets</b>	TESS Cycle 3 (GO3195) · Collaborator (PI: Kostov)	\$50,000
2019	<b>EBLM M-dwarf Fundamental Parameters</b>	TESS Cycle 2 (GO22253) · Principal Investigator	\$50,000

## Observing

**BEBOP (Binaries Escorted By Orbiting Planets)** Founder (2013) · 4 Papers

**EBLM (Eclipsing Binaries Low Mass)** Leader (Since 2013) · 8 Papers

### 12 Space Proposals Accepted

2022 - 2023	<b>EBLM M-dwarf Fundamental Parameters</b>	TESS Cycle 5 (GO5024) · Principal Investigator	200 targets
2022 - 2023	<b>M-dwarf Flare Geometry in Eclipsing Binaries</b>	TESS Cycle 5 (GO5073) · Principal Investigator	2 targets
2022 - 2023	<b>White Dwarfs in Binaries</b>	TESS Cycle 5 (GO5071) · Principal Investigator	800 targets
2019 - 2023	<b>EBLM M-dwarf Fundamental Parameters</b>	CHEOPS GTO · Co-Investigator (PI: Pierre Maxted)	25 targets
2021 - 2022	<b>EBLM M-dwarf Fundamental Parameters</b>	TESS Cycle 4 (GO4157) · Principal Investigator	200 targets
2021 - 2022	<b>Circumbinary Planets</b>	TESS Cycle 4 (GO4058) · Collaborator	Full Frame Images
2021 - 2022	<b>White Dwarfs in Binaries</b>	TESS Cycle 4 (GO4209) · Principal Investigator	7,000 targets
2021 - 2022	<b>M-dwarf Flare Phases</b>	TESS Cycle 4 (GO4229) · Co-Investigator (PI: Emily Gilbert)	24 targets
2020 - 2021	<b>Circumbinary Planets</b>	TESS Cycle 3 (GO3195) · Collaborator	Full Frame Images
2020 - 2021	<b>EBLM M-dwarf Fundamental Parameters</b>	TESS Cycle 3 (GO3195) · Collaborator	200 targets
2020 - 2021	<b>Planets Around Halo Stars</b>	TESS Cycle 3 (GO3120) · Collaborator (PI: Ji Wang)	900 targets
2019 - 2020	<b>EBLM M-dwarf Fundamental Parameters</b>	TESS Cycle 2 (GO22253) · Principal Investigator	200 targets

	<b>12 Ground Proposals Accepted</b>	~140+ Nights on Site · ~29 Nights Remote · 7 Students Trained	
2018 - 2024	<b>BEBOP Survey</b>	SOPHIE Spectrograph (France) · Co-I (PI: Alexander Santerne)	208 nights
2022 - 2023	<b>TOI-700 Habitable Zone Exoplanets</b>	ESPRESSO Spectrograph (Chile) · Co-I (PI: Emily Gilbert)	8 nights
2020 - 2023	<b>Non-Interacting Black Holes in Binaries</b>	CHIRON Spectrograph (Chile) · Co-I (PI: ASAS-SN Team)	13 nights
2022	<b>White Dwarf Spectroscopy</b>	LBT/MODS Spectrograph (AZ) · Co-I (PI: Romy Rodríguez Martínez)	1 night
2021	<b>White Dwarf Spectroscopy</b>	LBT/MODS Spectrograph (AZ) · Principal Investigator	1/2 night
2022 - 2023	<b>BEBOP-1 First RV Discovery</b>	ESPRESSO Spectrograph (Chile) · Co-I (PI: Matthew Standing)	8 nights
2021 - 2023	<b>BEBOP Survey</b>	HARPS Spectrograph (Chile) · Co-I (PI: Amaury Triaud)	78 nights
2018 - 2020	<b>BEBOP Survey</b>	HARPS Spectrograph (Chile) · Co-I (PI: Amaury Triaud)	54 nights
2017	<b>Kepler-1660 Confirmation</b>	CARMENES Spectrograph (Spain) · Co-I (PI: Hans Deeg)	4 nights
2017	<b>BEBOP Pilot</b>	HARPS Spectrograph (Chile) · Co-I (PI: Amaury Triaud)	5 nights
2013 - 2019	<b>BEBOP Survey</b>	CORALIE Spectrograph (Chile) · Principal Investigator	60 nights
2013 - 2019	<b>EBLM Survey</b>	CORALIE Spectrograph (Chile) · Co-I (PI: Amaury Triaud)	20 nights

## Teaching

2022	<b>PhD Student Presentation Workshop</b>	Slide design · Presentation skills · Peer review	Ohio State
2022	<b>Soft Skills Workshops</b>	3x · Poster creation · Website building · CVs	Ohio State
2021 - 2022	<b>AST 2825 Guest Lecturer</b>	2x	Ohio State
2018	<b>AST 133 Guest Lecturer</b>		Chicago
2014 -	<b>Telescope Operating Instructor</b>	7 students	ESO La Silla

## Leadership, Service & DEI

2022	<b>Great Lakes Area Exoplanet Meeting</b>	Organiser (local & scientific committees)	Ohio State
2022	<b>51 Peg Fellowship Recruitment</b>		Ohio State
2022 -	<b>Hubble Fellowship Mentor</b>		
2022 -	<b>Diversity Journal Club</b>	Organiser · Presenter · Moderator	Ohio State
2021 -	<b>Diversity, Equity &amp; Inclusion Committee</b>	Postdoc Representative	Ohio State
2021 -	<b>Graduate Admissions Interviews</b>		Ohio State
2021 -	<b>Exoplanet Group Meeting</b>	Organiser · Moderator · Coordinating Visitors	Ohio State
2018 - 2019	<b>Exoplanet Group Meeting</b>	Organiser · Moderator · Coordinating Visitors	Chicago
2019 -	<b>Proposal Referee</b>	5x · FINNEST · NSF Grad Fellowship · Opticon TAC	
2017	<b>Planets in Binaries Workshop</b>	Organiser (local & scientific committees)	Bern · CH
2016 -	<b>Journal Referee</b>	14x · Nature · ApJ · A&A · MNRAS · PASA · New Astronomy Review	
	<b>Membership</b>	AAS · TESS CBP Working Group · PLATO CBP Working Group · BEBOP Collaboration (founder) · EBLM Collaboration (co-leader)	

## Talks

### OUTREACH EVENTS (24 TOTAL)

2022	<b>Ohio State Astronomy Society</b>		Columbus, OH
2020 - 2022	<b>Ohio State Movie Night</b>	3x	Virtual
2021 - 2022	<b>Perkins Observatory</b>	2x	Delaware, OH
2020	<b>Ask an Astronomer</b>		Virtual
2018 - 2019	<b>Senior Citizen Science</b>	2x	Chicago, IL
2018 - 2019	<b>Astro on Tap</b>	2x	Chicago, IL
2018	<b>Sulzer Library</b>		Chicago, IL
2016 - 2017	<b>Geneva Elementary School</b>	2x	Geneva, CH
2013 - 2017	<b>Geneva Observatory Tour Guide</b>	10x · Bilingual (French/English) · CATERED ages ~5-80 · 3D Planetarium	Geneva, CH

## INVITED COLLOQUIA (20 TOTAL)

2022	<b>University of Southern Queensland</b>	Virtual
2022	<b>University of New South Wales</b>	Sydney, AUS
2022	<b>Monash University</b>	Melbourne, AUS
2022	<b>Vanderbilt University</b>	Nashville, TN
2022	<b>Flatiron CCA</b>	New York, NY
2022	<b>IPAC/Caltech</b>	Virtual
2022	<b>Yale</b>	Virtual
2022	<b>Penn State University</b>	Virtual
2021	<b>Arizona</b>	Virtual
2021	<b>McGill University</b>	Virtual
2021	<b>University of Birmingham</b>	Virtual
2020	<b>The Ohio State University</b>	Virtual
2019	<b>The Ohio State University</b>	Columbus, OH
2018	<b>University of Geneva</b>	Geneva, CH
2016	<b>University of Cambridge</b>	Cambridge, UK
2016	<b>Monash University</b>	Melbourne, AUS
2016	<b>CTIO</b>	La Serena, CHILE
2015	<b>University of Geneva</b>	Geneva, CH
2015	<b>University of Toronto</b>	Toronto, CAN
2013	<b>University of Geneva</b>	Geneva, CH

## CONFERENCE TALKS (19 TOTAL)

2022	<b>Great Lakes Area Exoplanet meeting</b>	Organiser	Columbus, OH
2022	<b>CCAPP Fellow Symposium</b>		Columbus, OH
2022	<b>NASA Hubble Symposium</b>		Virtual
2022	<b>Exoplanets IV</b>		Las Vegas, NV
2021	<b>Great Lakes Area Exoplanet Meeting</b>		Ann Arbor, MI
2021	<b>CCAPP Fellow Symposium</b>		Columbus, OH
2021	<b>NASA Hubble Symposium</b>		Virtual
2021	<b>Triple Evolution &amp; Dynamics 3</b>		Virtual
2020	<b>NASA Hubble Symposium</b>		Virtual
2019	<b>Lake Michigan Exoplanets Meeting</b>		Chicago, IL
2019	<b>Universe of Binaries</b>	Invited Review	Telc, CZECH
2018	<b>Triple Evolution &amp; Dynamics 2</b>	Invited	Leiden, NETH
2017	<b>Exoplanets II</b>		Cambridge, UK
2017	<b>Planets in Binaries</b>	Organiser	Bern, CH
2015	<b>European Week of Science</b>	Invited	Tenerife, SPAIN
2015	<b>Triple Evolution &amp; Dynamics</b>		Haifa, ISRAEL
2014	<b>Planet-S Kick-off</b>		Geneva, CH
2014	<b>Living together: planets, hosts &amp; binaries</b>		Litomysl, CZECH
2014	<b>European Week of Space Science</b>		Geneva, CH

## Selected Press

2022	<b>The Future of Astronomy Starts Here - 25 Rising Stars in Astronomy</b>		Astronomy Mag.
2022	<b>Welcome to Kepler-16b, A 'Tatooine' Planet Newly Spotted From Earth</b>	Triaud et al. (2022)	Forbes Mag.
2020	<b>How's Your Internship Going? This Teen Found a Planet</b>	Kostov et al. (2020)	New York Times
2017	<b>This is the Tiniest Star Scientists Have Ever Seen</b>	von Boetticher et al. (2017)	NBC News
2016	<b>Exoplanet hunters are missing 75 per cent of two-star worlds</b>	Martin (2017)	New Scientist

# Publications

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37 peer reviewed papers h-index = 16

14 first author papers h-index = 10

7 papers with supervised students **highlighted in red** · 4 with student first author

1 textbook review chapter

700+ citations 90+ max citations

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

## SUPERVISED STUDENT FIRST AUTHOR (4 TOTAL)

### The EBLM project X - Benchmark masses, radii and temperatures for two fully convective M-dwarfs using K2

*MNRAS (under review, arXiv)*

DUCK, A · MARTIN, D V · GILL, S · ARMITAGE, T · RODRÍGUEZ MARTÍNEZ, R · ET AL.

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 · BOLEY, K · ET AL.

2022

### Sculpting the circumbinary planet size distribution through resonant interactions with companion planets

*MNRAS*

FITZMAURICE, E · MARTIN, D V · FABRYCKY, D

2022

### The EBLM project. VII - Spin-orbit alignment for the circumbinary planet host EBLM J0608-59/TOI-1338

*MNRAS*

HODŽIĆ KUNOVAC, V · TRIAUD, A · MARTIN, D V · ET AL.

2020

## FIRST AUTHOR (14 TOTAL)

### Revised Temperatures for Two Benchmark M-dwarfs - Outliers No More

*MNRAS (under review, arXiv)*

MARTIN, D V · ARMITAGE, T · DUCK, A · SWAYNE, M · RODRÍGUEZ MARTÍNEZ, R · SETHI, R · ET AL.

2022

### Running the Gauntlet - Survival of Small Circumbinary Planets Migrating Through Destabilising Resonances

*MNRAS*

MARTIN, D V · FITZMAURICE, E

2022

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

*MNRAS*

MARTIN, D V · EL-BADRY, K · KUNOVAC HODŽIĆ, V · ET AL.

2021

### Searching for Small Circumbinary Planets I. The STANLEY Automated Algorithm and No New Planets in Existing Systems

*AJ*

MARTIN, D V · FABRYCKY, D

2021

### The BEBOP radial-velocity survey for circumbinary planets I. Eight years of CORALIE observations of 47 single-lined eclipsing binaries and abundance constraints on the masses of circumbinary planets

*A&A*

MARTIN, D V · ET AL.

2019

### Transit Phenomena of Inclined Exomoons - Hide and Seek and an Application to Kepler-1625

*MNRAS*

MARTIN, D V · FABRYCKY, D · MONTET, B

2019

**The binary mass ratios of circumbinary planet hosts** MNRAS  
MARTIN, D V 2019

**Populations of planets in multiple star systems** *Handbook of Exoplanets*  
MARTIN, D V 2018

**Transit probability of precessing circumstellar planets in binaries and exomoons** MNRAS  
MARTIN, D V 2017

**Circumbinary planets - II. When transits come and go** MNRAS  
MARTIN, D V 2017

**Kozai-Lidov cycles towards the limit of circumbinary planets** MNRAS  
MARTIN, D V · TRIAUD, A 2016

**No circumbinary planets transiting the tightest Kepler binaries - a possible fingerprint of a third star** MNRAS  
MARTIN, D V · MAZEH, T · FABRYCKY, D 2015

**Circumbinary planets - why they are so likely to transit** MNRAS  
MARTIN, D V · TRIAUD, A 2015

**Planets transiting non-eclipsing binaries** A&A  
MARTIN, D V · TRIAUD, A 2014

#### FURTHER PUBLICATIONS (19 TOTAL)

**The First Circumbinary Planet Discovered With Radial Velocities** *Nature Astronomy (under review)*  
STANDING, M · SAIRAM, L · MARTIN, D V · ET AL. 2022

**The EBLM Project IX. Five fully convective M-dwarfs, precisely measured with CHEOPS and TESS light curves** MNRAS  
SEBASTIAN, D · ET AL. (INCL MARTIN, D V) 2022

**The Giraffe: Discovery of a stripped red giant in an interacting binary with a 2 Msun lower giant** MNRAS  
JAYASINGHE, T · ET AL. (INCL MARTIN, D V) 2022

**BEBOP III. Observations and an independent mass measurement of Kepler-16 (AB) b - the first circumbinary planet detected in radial velocities** MNRAS  
TRIAUD, A · STANDING, M · HEIDARI, N · MARTIN, D V 2022

**BEBOP II. Sensitivity to sub-Saturn circumbinary planets using radial velocities** MNRAS  
STANDING, M · TRIAUD, A · FARIA, J · MARTIN, D V 2022

**TIC 172900988: A Transiting Circumbinary Planet Detected in One Sector of TESS Data** AJ  
KOSTOV, V · ET AL. (INCL MARTIN, D V) 2021

**The EBLM Project VIII. First results for M-dwarf mass, radius and effective temperature measurements using CHEOPS light curves** *AJ*  
 SWAYNE, M · ET AL. (INCL MARTIN, D V) 2021

**A unicorn in the Monoceros: the 3 Msun dark companion to the bright, nearby red giant V723 is a non-interacting, mass-gap black hole candidate** *AJ*  
 JAYASINGHE, T · ET AL. (INCL MARTIN, D V) 2021

**Multiple Transits during a Single Conjunction: Identifying Transiting Circumbinary Planetary Candidates from TESS** *AJ*  
 KOSTOV, V · ET AL. (INCL MARTIN, D V) 2021

**TOI-1338: TESS' First Transiting Circumbinary Planets** *AJ*  
 KOSTOV, V · ET AL. (INCL MARTIN, D V) 2020

**The EBLM Project. VI. Mass and radius of five low-mass stars in F+M binaries discovered by the WASP survey** *A&A*  
 GILL, S · ET AL. (INCL MARTIN, D V) 2019

**The EBLM Project. V. Physical properties of ten fully convective, very-low-mass stars** *A&A*  
 VON BOETTICHER, A · ET AL. (INCL MARTIN, D V) 2019

**The CORALIE survey for southern extrasolar planets. XVIII. 3 new massive planets and two low-mass brown dwarfs at greater than 5 AU separation** *A&A*  
 RICKMAN, E · ET AL. (INCL MARTIN, D V) 2019

**The EBLM Project. IV. Spectroscopic orbits of over 100 eclipsing M dwarfs masquerading as transiting hot Jupiters** *A&A*  
 TRIAUD, A · MARTIN, D V · ET AL. 2017

**The EBLM Project. III A Saturn-size low-mass star at the hydrogen-burning limit** *A&A*  
 VON BOETTICHER, A · ET AL. (INCL MARTIN, D V) 2017

**Gaia's potential for the discovery of circumbinary planets** *MNRAS*  
 SAHLMANN, J · TRIAUD, A · MARTIN, D V 2015

**On the abundance of circumbinary planets** *MNRAS*  
 ARMSTRONG, D · OSBORN, H · BROWN, D · FAEDI, F · GÓMEZ MAQUEO CHEW, Y · MARTIN, D V · ET AL. 2014

**Placing limits on the transit timing variations of circumbinary exoplanets** *MNRAS*  
 ARMSTRONG, D · MARTIN, D V · ET AL. 2014

**Towards Optimal Colimator Design for the PEDRO Hybrid Imager** *IEEE Transactions on Nuclear Science*  
 NGUYEN, C · GILLAM, J · BROWN, J · MARTIN, D V · ET AL. 2011