

DAVID VANCE MARTIN

Curriculum Vitae

Astronomer & Astrophysicist

Fellow of the Swiss National Science Foundation

University of Chicago · 5640 South Ellis Avenue · IL 606037 · USA

www.davidvmartin.com · davidmartin@uchicago.edu

January 2019

Research interests

Celestial mechanics	Exoplanet architectures
Multi-star systems	Tidal interactions
Circumbinary planets	Hot-Jupiter discovery and formation
Close binary formation	Numerical and hydrodynamical simulations
Radial velocity and photometric surveys	Student development and public outreach

Research positions

University of Chicago	2017 - Present
Fellow of the Swiss National Science Foundation	
Université de Genève	2017
Postdoctoral researcher in extra-solar planets	
Monash University	2010 - 2011
Research scholarship on Brownian motion on 3D topologies	
Monash Centre for Synchrotron Science	2009 - 2010
Research scholarship on optimal gamma ray medical imaging design	

Education

Université de Genève, Switzerland	2013 - 2017
PhD in Astronomy & Astrophysics	
Advisor: Prof. Stéphane Udry	
Thesis title: <i>“Orbital Dynamics in the Analysis and Observation of Circumbinary Planets”</i>	
Monash University, Australia	2012
First Class Honours in Astrophysics	
Advisor: Dr. Rosemary Mardling	
Thesis title: <i>“A Modern Study of Exoplanets: Transit Timing, Misaligned Circumbinary Planets and Numerical Tools”</i>	
Monash astrophysics award	
Monash University, Australia	2008 - 2011
Bachelor of Science Advanced	
Double major in pure mathematics	
Minors in physics and astrophysics	
GPA: 4.0/4.0	

Telescope time awarded - 391 nights total, 60 as PI

CORALIE @ Swiss 1.2 m, La Silla, Chile	60 nights	2013 - 2017
BEBOP radial velocity survey for circumbinary planets		
Principal investigator		
HARPS @ ESO 3.6 m, La Silla, Chile	80 nights	2018 - 2020
BEBOP radial velocity survey for circumbinary planets		
SOPHIE @ French 1.9 m, OHP, France	240 nights	2018 - 2022
BEBOP radial velocity survey for circumbinary planets		
HARPS @ ESO 3.6 m, La Silla, Chile	7 nights	2017
BEBOP pilot survey of high-precision radial velocities on single-lined binaries		
CARMENES @ Spanish 3.5 m, Calar Alto, Spain	4 nights	2017 - Present
Follow-up of Kepler exoplanet discoveries		
SOPHIE @ French 1.9 m, OHP, France	8 nights	2017 - Present
Follow-up of Kepler exoplanet discoveries		
CORALIE @ Swiss 1.2 m, La Silla, Chile	35 nights	2013 - 2018
EBLM survey for low mass eclipsing binaries		

Invited colloquia, seminars and conference oral presentations

- American Astronomical Society, Seattle, USA, January 2019
- Triple Evolution & Dynamics 2, Leiden, The Netherlands, September 2018
- University of Geneva, Switzerland, July 2018
- Exoplanets 2, Cambridge, UK, July 2018
- Chicago & Northwestern exoplanet workshop, Chicago, USA, December 2017
- Planets in binaries workshop, Bern, Switzerland, March 2017
- University of Cambridge, UK, June, 2016
- Monash University, Australia, March, 2016
- Cerro Tololo Inter-American Observatory, Chile, August, 2015
- European Week of Space Science, Tenerife, Spain, June, 2015
- Triple Evolution & Dynamics, Haifa, Israel, May - June, 2015
- University of Geneva, Switzerland, April, 2015
- University of Toronto, Canada, February 2015
- Planet-S Kick-off conference, Geneva, Switzerland, October, 2014
- Living together: planets, host stars and binaries, Litomysl, Czech Republic, September, 2014
- European Week of Space Science, Geneva, Switzerland, June - July, 2014
- University of Geneva, Switzerland, September, 2013

Academic service

- Member of the TESS and PLATO circumbinary planets working groups
- 5 months on site observing at La Silla (Chile), OHP (France) and La Palma (Spain)
- Instructor and supervisor of new observers at the Swiss Telescope at La Silla
- Referee for ApJ, AJ, MNRAS, PASA, New Astron. Reviews
- Organised introductory seminars given by new exoplanet students at Geneva
- Organised the "Planets in binaries" workshop in Bern, Switzerland in March 2017
- Geneva public outreach: observatory tour guide and school special visitor
- Chicago public outreach: Astro on Tap and senior citizen learning center presenter
- Organiser of Exoplanet Journal Club and seminars at the University of Chicago

Languages

English: mother tongue

French: intermediate proficiency

List of papers published and under review - h-index of 8

First author

1. "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," **Martin, D. V.**, Triaud, A. H. M. J., Udry, S., et al., accepted at A&A, arXiv:1901.01627
2. "Transit Phenomena of Inclined Exomoons - Hide and Seek and an Application to Kepler-1625," **Martin, D. V.**, Fabrycky, D. C & Montet, B. T., under review at ApJL, arXiv:1901.06366
3. "The binary mass ratios of circumbinary planet hosts," **Martin, D. V.**, under review at MNRAS
4. "Populations of planets in multiple star systems," **Martin, D. V.**, invited review chapter in Handbook of Exoplanets, arXiv:1802.08693, editors: Deeg, H, Belmonte, J. A., Batalha, N.
5. "Transit probability of precessing circumstellar planets in binaries and exomoons," **Martin, D. V.**, 2017, MNRAS, 467, 1694
6. "Circumbinary planets - II. when transits come and go," **Martin, D. V.**, 2017, MNRAS, 465, 3235
7. "Kozai-Lidov cycles towards the limit of circumbinary planets," **Martin, D. V.**, Triaud, A. H. M. J., 2016, MNRAS, 455, L46
8. "No circumbinary planets transiting the tightest Kepler binaries - a possible fingerprint of a third star," **Martin, D. V.**, Mazeh, T., Fabrycky, D. C., 2015, MNRAS, 453, 3554
9. "Circumbinary planets - why they are so likely to transit," **Martin, D. V.**, Triaud, A. H. M. J., 2015, MNRAS, 449, 781
10. "Planets transiting non-eclipsing binaries," **Martin, D. V.**, Triaud, A. H. M. J., 2014, A&A, 570, A91

Other author

1. "The EBLM Project VI. Masses and radii of 10 fully convective, very-low-mass stars," von Boetticher, A. et al. incl **Martin, D. V.**, under review at A&A
2. "The EBLM Project IV. Spectroscopic orbits of over 100 eclipsing M dwarfs masquerading as transiting hot Jupiters," Triaud, A. H. M. J., **Martin, D. V.**, et al., 2017, A&A, 608, A129
3. "The EBLM project III. A Saturn-size low-mass star at the hydrogen-burning limit," von Boetticher, A. et al. incl **Martin, D. V.**, 2017, A&A, 604, L6
4. "GAIA's potential for the discovery of circumbinary planets," Sahlmann, J., Triaud, A. H. M. J., **Martin, D. V.**, 2015, MNRAS, 447, 287
5. "On the abundance of circumbinary planets," Armstrong, D. J., Osborn, H., Brown, D., Faedi, F., Gómez Maqueo Chew, Y., **Martin, D. V.**, Pollacco, D., Udry, S., 2014, MNRAS, 444, 1873
6. "Placing limits on the transit timing variations of circumbinary exoplanets," Armstrong, D., **Martin, D. V.**, et al., 2013, MNRAS, 434, 3047
7. "Towards Optimal Collimator Design for the PEDRO Hybrid Imaging System," Nguyen, C. V., Gillam, J. E., Brown, J. M. C., **Martin, D. V.**, Nikulin, D. A., Dimmock, M. R., 2011, IEEE Transactions on Nuclear Science, 58, 3

Conference proceedings

1. "The Prospects of Finding Planets Transiting Non-Eclipsing Binaries with Kepler," **Martin, D. V.**, Triaud, A. H. M. J., 2015, ASP Conference Series, Vol. 496
2. "Detecting Circumbinary Exoplanets: Understanding Transit Timing," Armstrong, D. J., **Martin, D. V.**, Pollacco, D., 2013, IAU Symposium No. 299
3. "Hybrid-collimator design for a small animal imager: PEDRO," Nguyen, C. V., Brown, J. M. C., Lewis, R. A., **Martin, D. V.**, Dimmock, M. R., Nikulin, D. A., Gillam, J. E., 2010, IEEE Nuclear Science Symposium & Medical Imaging Conference, 3042