

Ryan Cloutier, PhD

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Research Interests

Observational exoplanet astronomer focusing on the detection and characterization of the galaxy's most common planets around its most common stars to inform our understanding of how these planets form and evolve.

Employment

Faculty

Assistant Professor 2022-
Department of Physics & Astronomy, McMaster University

Post Graduate

Banting Fellow 2021-22
Center for Astrophysics | Harvard & Smithsonian

Postdoctoral Fellow 2019-21
Center for Astrophysics | Harvard & Smithsonian

Graduate

PhD Candidate 2014-19
Department of Astronomy & Astrophysics (UofT), Centre for Planetary Sciences, and the Institute for Research on Exoplanets

Undergraduate

Undergraduate Researcher 2012-14
Canadian Institute for Theoretical Astrophysics, Dunlap Institute for Astronomy & Astrophysics, Department of Astronomy & Astrophysics (UofT)

Education

PhD in Astronomy & Astrophysics, University of Toronto 2019
Advisors: Kristen Menou and René Doyon
Thesis: Semi-Parametric Methods to Aid in the Detection and Characterization of Distant Worlds Around Small Stars

Honours BSc w/ Distinction in Physics & Astronomy, University of Toronto 2014
Advisor: Ray Jayawardhana
Thesis: A Deep Spitzer Survey of Circumstellar Disks in the Young Double Cluster, η and χ Persei

Publications

First-Author Refereed Publications (17 in total)

Cloutier, R., Greklek-McKeon, M., Wurmser, S., et al. Masses, Revised Radii, and a Third Planet Candidate in the 'Inverted' Planetary System around TOI-1266, 2023, [MNRAS in press](#)

Cloutier, R., Charbonneau, D., Deming, D., Bonfils, X., Astudillo-Defru, N. A More Precise Mass for GJ 1214 b and the Frequency of Multi-Planet Systems Around Mid-M Dwarfs, 2021, [AJ, 162, 174](#)

Cloutier, R., Charbonneau, D., Stassun, K.G., et al. TOI-1634 b: an Ultra-Short Period Keystone Planet Sitting Inside the M Dwarf Radius Valley, 2021, [AJ, 162, 79](#)

Cloutier, R., Rodriguez, J., Irwin, J., et al. TOI-1235 b: a Keystone Super-Earth for Testing Radius Valley Emergence Models Around Early M Dwarfs. 2020, [AJ, 160, 22](#)

Cloutier, R., Eastman, J., Rodriguez, J., et al. A Pair of TESS Planets Spanning the Radius Valley Around the Nearby Mid-M Dwarf LTT 3780. 2020, [AJ, 160, 3](#)

Cloutier, R. & Menou, K.. Evolution of the Radius Valley Around Low Mass Stars from Kepler and K2. 2020, [AJ, 159, 211](#)

Cloutier, R., Astudillo-Defru, N., Bonfils, X., et al. Characterization of the L 98-59 multi-planetary system with HARPS: Mass Characterization of a Hot Super-Earth, a Sub-Neptune, and a Mass Upper Limit on the Third Planet. 2019, [A&A, 629A, 111](#)

Cloutier, R. The Independent Discovery of Planet Candidates Around Low Mass Stars and Astrophysical False Positives in the First Two TESS Sectors. 2019, [AJ, 158, 81](#)

Cloutier, R., Astudillo-Defru, N., Doyon, R., et al. Confirmation of the Radial Velocity Super-Earth K2-18c with HARPS and CARMENES. 2019, [A&A, 621A, 49](#)

Cloutier, R., Doyon, R., Bouchy, F., Hébrard, G. Quantifying the Observational Effort Required for the Radial Velocity Characterization of TESS Planets. 2018, [AJ, 156, 82](#)

Cloutier, R., Artigau, É., Delfosse, X., et al. Predictions of Planet Detections with Near-Infrared Radial Velocities in the Up-coming SPIRou Legacy Survey-Planet Search. 2018, [AJ, 155, 93](#)

Cloutier, R., Astudillo-Defru, N., Doyon, R., et al. Characterization of the K2-18 multi-planetary system with HARPS: A Habitable Zone Super-Earth and Discovery of a Second, Warm Super-Earth on a Non-Coplanar Orbit. 2017, [A&A, 608A, 35](#)

Cloutier, R., Doyon, R, Menou, K., et al. On the Radial Velocity Detection of Additional Planets in Transiting, Slowly Rotating M Dwarf Systems: The Case of GJ 1132. 2017, [AJ, 153, 9](#)

Cloutier, R. & Triaud, A.H.M.J. Menou, K. Prospects for Detecting the Rossiter-McLaughlin Effect of Earth-like Planets: The Test Case of TRAPPIST-1b and c. 2016, [MNRAS, 462, 4018](#)

Cloutier, R., Tamayo, D., & Valencia D. Could Jupiter or Saturn have Ejected a Fifth Giant Planet? 2015, [ApJ, 813, 8](#)

Cloutier, R., Currie, T., Rieke G., et al. A Deep Spitzer Study of Circumstellar Disks in the Young Double Cluster, η and χ Persei. 2014, [ApJ, 796, 127](#)

Cloutier, R. & Lin, M.K. Orbital Migration of Giant Planets Induced by Gravitationally Unstable Gaps: The Effect of Planet Mass. 2013, [MNRAS, 434, 621](#)

Contributing-Author Refereed Publications (50 in total)

Quintana, E., et al. Two Warm Super-Earths Transiting the Nearby M Dwarf TOI-2095, 2023, [AJ, 166, 195](#)

Donati, J.F., et al. Magnetic fields and rotation periods of M dwarfs from SPIRou spectra, 2023, [MNRAS, 525, 2015](#)

Pass, E., et al. HST/WFC3 Light Curve Supports a Terrestrial Compositions for the Closest Exoplanet Transit an M Dwarf, 2023, [AJ, 166, 171](#)

Bellotti, S., et al. Monitoring the large-scale magnetic field of AD Leo with SPIRou, ESPaDOnS, and Narval. Towards a magnetic polarity reversal? 2023, [A&A, 676A, 56](#)

Allart, R. et al. Homogeneous Search for Helium in the Atmosphere of 11 Gas Giant Exoplanets with SPIRou, 2023, [A&A, 677A, 164](#)

Boucher, A., et al. CO or no CO? Narrowing the CO abundance constraint and recovering the H₂O detection in the atmosphere of WASP-127 b using SPIRou, 2023, [MNRAS, 522, 5062](#)

Brahm, R., et al. Three Long-period Transiting Giant Planets from TESS, 2023, [AJ, 165, 227](#)

Peterson, M., et al. A temperate Earth-sized planet with tidal heating transiting an M6 star, 2023, [Nature, 617, 701](#)

Zhang, J., Martin, P., **Cloutier, R.**, et al. Joint Modeling of Dust Scattering and Thermal Emission: The Spider Complex, 2023, [ApJ, 948, 4](#)

Cortés-Zuleta, P., et al. Optical and near-infrared stellar activity characterization of the early M dwarf Gl 205 with SOPHIE and SPIRou, 2023, [A&A, 673A, 14](#)

Hawthorn, F., et al. TOI-836: A super-Earth and mini-Neptune transiting a nearby K-dwarf, 2023, [MNRAS, 520, 3649](#)

Cherubim, C., **Cloutier, R.**, Charbonneau, D., et al. TOI-1695 b: a Water World Orbiting an Early M Dwarf in the Planet Radius Valley, 2023, [AJ, 165, 167](#)

DiTomasso, V., et al. Independent Validation of the Temperate Super-Earth HD 79211b using HARPS-N, 2023, [AJ, 165, 38](#)

El Mufti, M., et al. TOI-560: Two Transiting Planets Orbiting a K Dwarf Validated with iSHELL, PFS, and HIRES RVs, 2023, [AJ, 165, 10](#)

Lillo-Box, J., et al. TOI-969: a Late K Dwarf with a Hot Mini-Neptune in the desert and an Eccentric Hot Jupiter, 2023, [A&A, 669A, 109](#)

Cadieux, C., et al. TOI-1452 b: SPIRou and TESS reveal a super-Earth in a temperate orbit transiting an M4 dwarf, 2022, [AJ, 164, 96](#)

Barragán, O., et al. The Young HD 73583 (TOI-560) Planetary System: Two 10 M_⊕ Mini-Neptunes Transiting a 500 Myr-Old, Bright, and Active K Dwarf, 2022, [MNRAS, 514, 1606](#)

Winters, J., **Cloutier, R.**, Medina, A., et al. A Second Planet Transiting LTT 1445A and a Determination of the Masses of Both Worlds, 2022, [AJ, 163, 168](#)

Silverstein, M., et al. The LHS 1678 System: Two Earth-Sized Transiting Planets and an Astrometric Companion Orbiting an M Dwarf Near the Convective Boundary at 20 pc, 2022, [AJ, 163, 151](#)

Martoli, E., et al. TOI-1759 b: a transiting sub-Neptune around a low mass star characterized with SPIRou and TESS, 2022, [A&A, 660, 86](#)

Wilson, T., et al. A Pair of Sub-Neptunes Transiting the Bright K Dwarf TOI-1064 Characterized by CHEOPS, 2022, [MNRAS, 511, 1043](#)

Kaye, L., et al. Transit Timing Variations in the Three-Planet System TOI-270, 2022, [MNRAS, 510, 5464](#)

Giacalone, S., et al. Validation of Thirteen Hot and Potentially Terrestrial TESS Planets, 2022, [AJ, 163, 99](#)

Saunders, N., et al. TESS Giants Transiting Giants I: A Non-inflated Hot Jupiter Orbiting a Massive Subgiant, 2022, [AJ, 163, 53](#)

Boucher, A., et al. Characterizing Exoplanetary Atmospheres at High Resolution with SPIRou: Detection of Water on HD 189733 b, 2021, [AJ, 162, 233](#)

Osborn, A., et al. TOI-431/HIP 26013: a super-Earth and a sub-Neptune transiting a bright, early K dwarf, with a third RV planet, 2021, [MNRAS, 507, 2782](#)

Teske, J., et al. The Magellan-TESS Survey I: Survey Description and Mid-Survey Results, 2021, [ApJS, 256, 33](#)

Bluhm, P., et al. An Ultra-Short Period Transiting Super-Earth Orbiting the M3 Dwarf TOI-1685, 2021, [A&A, 650A, 78](#)

Soto, M.G., et al. Mass and Density of the Transiting Hot and Rocky Super-Earth LHS 1478 b, 2021, [A&A, 649A, 144](#)

Dumusque, X., et al. Three Years of HARPS-N High-Resolution Spectroscopy and Precise Radial Velocity Data for the Sun, 2021, [A&A, 648A, 103](#)

Klein, B., et al. Investigating the Young AU Mic System with SPIRou: Large-Scale Stellar Magnetic Field and Close-in Planet Mass, 2021, [MNRAS, 502, 188](#)

Daylan, T., et al. TESS Discovery of a Super-Earth and Three Sub-Neptunes Hosted by the Bright, Sun-like star HD 108236, 2021, [AJ, 161, 85](#)

Sha, L., et al. TOI-954 b and EPIC 246193072 b: Short-Period Saturn-Mass Planets that Test Whether Irradiation Leads to Inflation, 2021, [AJ, 161, 82](#)

Newton, E., et al. TESS Hunt for Young and Maturing Exoplanets (THYME). IV. Three Small Planets Orbiting a 120 Myr Old Star in the Pisces-Eridanus Stream, 2021, [AJ, 161, 65](#)

Ment, K., et al. TOI-540 b: a Planet Smaller than Earth Orbiting a Nearby Rapidly Rotating Low-Mass Star, 2021, [AJ, 161, 23](#)

Luque, R., et al. A Planetary System with Two Transiting Mini-Neptunes Near the Radius Valley Transition around the Bright M Dwarf TOI-776, 2021, [A&A, 645A, 41](#)

Kemmer, J., et al. Discovery of a Hot, Transiting, Earth-Sized Planet and a Second Temperate, Non-Transiting Planet Around the M4 Dwarf GJ 3473, 2020, [A&A, 642A, 236](#)

Martoli, E., et al. Magnetism and Spin-Orbit Alignment in the Young Planetary System AU Mic, 2020, [A&A, 641L, 1](#)

Astudillo-Defru, N., **Cloutier, R.**, Wang, S., et al. A Hot Terrestrial Planet Orbiting the Bright M Dwarf L 168-9 Unveiled by TESS, 2020, [A&A, 636A, 58](#)

Gilbert, E., et al. The First Habitable Zone Earth-Sized Planet from TESS I: Validation of the TOI-700 System, 2020, [AJ, 160, 116](#)

Rodriguez, J., et al. The First Habitable Zone Earth-Sized Planet from TESS I: Spitzer Confirms TOI-700 d, 2020, [AJ, 160, 117](#)

Shporer, A., et al. GJ 1252b: a 1.2 R_{\oplus} Planet Transiting an M Dwarf at 20.4 pc, 2020, [ApJ, 890, 7](#)

Nelson, B., Ford, E., Buchner, J., **Cloutier, R.**, et al. Quantifying the Evidence for a Planet in Radial Velocity Data, 2020, [AJ, 159, 73](#)

Dalba, P., et al. The TESS-Keck Survey. I. A Warm Sub-Saturn-Mass Planet and a Caution about Stray Light in TESS Cameras, 2020, [AJ, 159, 241](#)

Bonfils, X., Almenara, J.M., **Cloutier, R.**, et al. Radial Velocity Follow-up of GJ 1132 with HARPS: a Precise Mass for Planet ‘b’ and the Discovery of a Second Planet, 2018, [A&A, 618A, 142](#)

Ment, K., et al. A Second Planet with an Earth-like Composition Orbiting the Nearby M dwarf LHS 1140, 2018, [AJ, 157, 32](#)

Currie, T., Grady, C., **Cloutier, R.**, et al. The Matryoshka Disk: Keck/NIRC2 Discovery of a Solar System-Scale, Radially Segregated Residual Protoplanetary Disk Around HD 141569A, 2016, [ApJL, 819, 26](#)

Currie, T., **Cloutier, R.**, Brittain, S., et al. Resolving the HD 100546 Protoplanetary System with the Gemini Planet Imager: Evidence for Multiple Forming, Accreting Planets, 2015, [ApJL, 814, 27](#)

Currie, T., Burrows, A., Girard, J., **Cloutier, R.**, et al. Deep Thermal Infrared Imaging of HR 8799 bcde: New Atmospheric Constraints and Limits on a Fifth Planet, 2014, [ApJ, 795, 133](#)

Currie, T., **Cloutier, R.**, Debes, J., Kenyon, S., & Kessler, D. A Deep Keck/NIRC2 Search for Thermal Emission from Planetary Companions Orbiting Fomalhaut, 2013, [ApJL, 777, 6](#)

Manuscripts Under Review w/ Preprints (5 in total)

Almenara, J.M., et al. TOI-4860 b, a short-period giant planet transiting an M3.5 dwarf, 2023, [A&A submitted](#)

Cadioux, C., et al. New Mass and Radius Constraints on the LHS 1140 Planets — LHS 1140 b is Either a Temperate Mini-Neptune or a Water World, 2023, [AJ submitted](#)

de Wit, J., et al. A roadmap to the efficient and robust characterization of temperate terrestrial planet atmospheres with JWST, 2023, [AAS journals submitted](#)

Hord, B., et al. Identification of the Top TESS Objects of Interest for Atmospheric Characterization of Transiting Exoplanets with JWST, 2023, [AJ submitted](#)

Jahandar, F., et al. Comprehensive High-Resolution Chemical Spectroscopy of Barnard’s Star with SPIRou, 2023, [ApJ submitted](#)

Non-Refereed Publications (2 in total)

Benneke, B., et al. Exoplanet Instrumentation in the 2020s: Canada’s Pathway Towards Searching for Life on Potentially Earth-like Exoplanets, 2020, [Canadian Long Range Plan for Astronomy and Astrophysics, LRP2020](#)

Bouchy, F., et al. Near-InfraRed Planet Searcher to Join HARPS on the ESO 3.6-metre Telescope, 2017, [The ESO Messenger, No. 169](#)

Presentations

Invited Talks

Astro Seminar

No Answers, Only Questions: the Curious Case of the “Inverted”
Planetary System TOI-1266

Waterloo Centre for Astrophysics

2023

Faculty of Science Colloquium Series

Studying the Origins of the Galaxy’s Most Common Planets
around its Most Common Stars

McMaster University

2023

Department Colloquium Understanding the Origins of the Galaxy's Most Common Planets around its Most Common Stars	Brock University 2023
Astrophysics Seminar Understanding the Origins of the Galaxy's Most Common Planets around its Most Common Stars	Université de Montréal 2022
Department Colloquium Understanding the Origins of the Galaxy's Most Common Planets around its Most Common Stars	York University 2022
Origins Institute Seminar The Stellar Mass Dependence of the Radius Valley: Insights into Forming the Rocky/Enveloped Transition	Origins Institute, McMaster University 2022
Department Seminar Understanding the Origins of the Galaxy's Most Common Planets around its Most Common Stars	Queen's University 2022
Department Colloquium Understanding the Origins of the Galaxy's Most Common Planets around its Most Common Stars	McMaster University 2022
Astrophysics Seminar GJ 1214 and the Frequency of Multi-Planet Systems around Mid-M Dwarfs	American Museum of Natural History 2021
Chalk Talk lecture The Stellar Mass Dependence of the Radius Valley: Insights into Forming the Rocky/Enveloped Transition	Harvard Origins of Life Initiative 2021
Exoplanet Seminar Testing Radius Valley Emergence Models Around M dwarfs with TESS	Cambridge University 2020
Department Colloquium Reconciling the Planetary Interpretation of the Radial Velocity Super-Earth K2-18c	Geneva Observatory 2019
Center for Exoplanet & Habitable Worlds Seminar A Semi-Parametric Approach to Stellar Activity and the Search for Terrestrial Mass Radial Velocity Planets	Penn State 2019
Review Talks	
7th SPIRou Science Meeting Transiting Exoplanet Demographics	Toulouse, FR 2023
Exoplanet Demographics Sculpting the Close-in Planet Population Across the Main Sequence	Virtual Conference 2020
Contributed Conference Talks	
CITA Planet Day No Answers, Only Questions: the Curious Case of the "Inverted" Planetary System TOI-1266	University of Toronto 2023
CASCA 2023 CASTOR Stars Working Group Overview	Penticton, BC 2023
CITA Planet Day On the Rocky/Enveloped Transition of Hot Planets around Cool Stars	University of Toronto 2022

Exoplanets III Evolution of the Radius Valley from Sun-Like to Low Mass Stars	Virtual Conference 2020
235th AAS Meeting Masses for Planets Transiting M Dwarfs	Honolulu, HI 2020
235th AAS Meeting Semi-Parametric Methods to Aid in the Detection and Characterization of Distant Worlds Around Small Stars	Honolulu, HI 2020
TESS Science Conference I Present and Future Efforts for PRV Characterization of Southern TESS Planets Through the HARPS M Dwarf Program	Boston, MA 2019
Extremely Precise Radial Velocities IV Reconciling the Planetary Interpretation of the Radial Velocity Super-Earth K2-18c	Grindelwald, Switzerland 2019
2nd Rencontres de Vietnam on Exoplanetary Science Discovering the Closest Habitable Worlds: Planet Detection Predictions for the SPIRou Legacy Survey-Planet Search	Quy Nhon, Vietnam 2018
CASCA 2017 Canadians on the Ground Searching for the Closest Habitable Worlds	Edmonton, AB 2017
SPIRou Science Meeting Simulated Searches for Small Radial Velocity Planets Amid Stellar Activity	Nice, France 2016
CASCA 2016 Detecting Potentially Habitable Earth-like Planets Around Cool Stars with SPIRou	Winnipeg, MA 2016
Emerging Researchers in Exoplanet Science II Detecting Potentially Habitable Earth-like Planets Around Cool Stars with SPIRou	Cornell, Uni. 2016
Conference Posters	
CASCA 2021 GJ 1214 b and the Frequency of Multi-Planet Systems Around Mid-M Dwarfs	Virtual Conference 2021
Exoplanets II Predictive Models of the RV Requirement to Measure Transiting Planet Masses or, How Long does it take to Detect 50 Small TESS Planets?	Cambridge, UK 2018
Extremely Precise Radial Velocities III Planet Detection Predictions from Simulations of the SPIRou Legacy Survey-Planet Search	Penn State 2017
Extreme Solar Systems III The Rossiter-McLaughlin Effect of Planets Transiting M dwarfs and its Impact on Planet Detection in Radial Velocity Surveys	Waikoloa, HI 2015
CASCA 2015 Could Jupiter have Ejected a Fifth Giant Planet from the Solar System?	Hamilton, ON 2015

Mentorship

Graduate Student Mentoring

Bennett Skinner McMaster MSc student (co-supervised w/ Ralph Pudritz)	2023-
Drew Weisserman McMaster MSc student	2023-
Raven Westlake McMaster MSc student (co-supervised w/ Alison Sills)	2023-
Phil Van-Lane UofT PhD student (co-supervised w/ Joshua Speagle & Gwen Eadie)	2023-
Erik Gillis McMaster MSc student	2022-
Nicole Gromek McMaster MSc student	2022-
Collin Cherubim First-year project for Harvard PhD student	2021-23

Undergraduate Student Mentoring

Kareena Bhalla NSERC USRA & McMaster undergraduate thesis student	2023-
Audrey Burggraf McMaster undergraduate thesis student	2023-
Omar Elmi McWork summer student	2023
Dante Hunter Physics co-op & McMaster undergraduate thesis student	2023-
Victor Pop McMaster Independent Research Project student	2023
Ava Whitehead McWork summer student	2023
Madison VanWyngarden Boston University REU student	2022-
Anna Simpson University of Michigan REU student	2021-23

Approved PI Observing Programs

Canada France Hawaii Telescope/SPIRou – (25.7+23+24.7 hrs) Exploring the correlation between gas giants and super-Earths around M stars	2023-
Gemini-South/GHOST – (5.5 hrs) Using GHOST to trace the formation histories of hot Jupiters around M dwarfs	2023B
Gemini-North/MAROON-X – (6.5 hrs) The Origin of the Rocky/Enveloped Transition around M dwarfs: the Test Case of TOI-5388 b	2023A

TESS Mini Guest Investigator Program (Cycle 6) Winds, Flares, and Orbits in White Dwarf-M Dwarf Binary Systems	2023
Gemini-South/IGRINS – (12.4 + 12.5 hrs) Empirically calibrating the method to measure accurate M dwarf elemental abundances	2022A
Canada France Hawaii Telescope/SPIRou – (10.1 + 11.9 + 3.0 hrs) Empirically calibrating the method to measure detailed M dwarf elemental abundances	2021-22
TESS Large Guest Investigator Program (Cycles 3,4,5) – \$250,000 USD Understanding the Physical Origin of the Rocky/Enveloped Transition Around Mid-to-Late M Dwarfs	2020-22
TESS Small Guest Investigator Program (Cycle 4) – \$70,000 USD Radial Velocity Measurements with HARPS-N to Uncover the Formation Pathway of Keystone Planets Around M Dwarfs	2021-22
Canada France Hawaii Telescope/SPIRou – (0.5 hrs) Recovering the Detailed Internal Structure of the Massive Terrestrial Exoplanet TOI-1235 b	2020A
Canada France Hawaii Telescope/SPIRou – (16 + 12.3 hrs) RVxTESS: Photometric and Spectropolarimetric Studies of M Dwarfs with Simultaneous TESS and CFHT/SPIRou Observations	2019-20

Teaching

Course Instructor

ASTRON 2E03 – Planetary Astronomy McMaster undergraduate course	2023-24
BIOPHYS 3D03 – Origin of Life McMaster undergraduate course	2024

Teaching Assistant

Head Teaching Assistant

ASTA02 – Beyond the Sun and Planets (150 students)	2017
ASTA01 – The Sun and Planets (150 students)	2016
AST201 – Stars and Galaxies (1500 students)	2016
AST101: The Sun and its Neighbours (1500 students)	2015

Teaching Assistant

AST251 – Life on Other Worlds (250 students)	2018-19
AST221 – Stars and Planets (40 students)	2017-18
AST121 – The Origin and Evolution of the Universe (200 students)	2018
CSCC01 – Introduction to Software Engineering (200 students)	2016
AST201 – Stars and Galaxies (1500 students)	2014-15
AST101 – The Sun and its Neighbours (1500 students)	2014-15

Pedagogical Training

Faculty Teaching Initiative:

A workshop for teaching strategies in undergraduate physics American Association of Physics Teachers	2023
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Mentoring Undergraduates: A workshop certificate series for scientist-mentors Harvard University	2020
Institute for Scientist and Engineer Educators: Professional Development Program UC Santa Cruz	2015
Teaching Assistant's Training Program University of Toronto	2015
Public Outreach	
RASC Public Lecture Public lecture for amateur astronomy group	2023
McMaster Children and Youth University Family Lecture Series Public lecture for school children and their families	2023
Origins Institute Public Lecture A series of live and virtual public lectures	2022
Octave of Light Concert Series Public lecture fused with musical accompaniment	2021
Exoplanet Seminar Latino Initiative Program	2021
Classroom Q&A sessions St. Joachim Elementary School Christ the King Elementary School	2018-21
AstroTour Public Lecture Series University of Toronto	2017
Graduate Speaker Series: Astronomy and Astrophysics University of Toronto	2017
Mystical Landscapes Planetarium Show Art Gallery of Ontario	2016
Public Lecture North York Astronomical Association	2015
Outreach Positions	
UofT Planetarium Planetarium operator	2015-19
Science Unlimited Summer Camp Camp volunteer	2017-18
UofT AstroTours Executive committee member	2016-18
Misc. Event Volunteer Public solar/night observing, Science Rendezvous street festival, Astro on Tap, etc.	2015-19

Awards & Recognitions

Fellowships

NSERC Banting Fellowship Center for Astrophysics Harvard & Smithsonian	2021-22
NSERC Postgraduate Scholarship – Doctoral Department of Astronomy & Astrophysics (UofT)	2016-19
Ontario Graduate Scholarship Department of Astronomy & Astrophysics (UofT)	2015-16
Lachlan Gilchrist Fellowship Department of Astronomy & Astrophysics (UofT)	2015-19
Center for Planetary Sciences Graduate Fellowship Centre for Planetary Sciences	2014-16
NSERC Canadian Graduate Scholarship – Master’s Department of Astronomy & Astrophysics (UofT)	2014-15

Academic Recognitions

Allen Yen Award for Excellence in Research Department of Astronomy & Astrophysics (UofT)	2018
Mary H. Beatty Scholarship Department of Astronomy & Astrophysics (UofT)	2014-15

Professional Service

Community Citizenship

Committee Membership CASCA Equity & Inclusivity Committee	2022-
CASCA Optical-Infrared Review Committee	2023-
Journal Referee The Astronomical Journal Astronomy & Astrophysics Monthly Notices of the Royal Astronomical Society Proceedings of the National Academy of Sciences of the United States of America	2017-
Telescope TAC Member Canada France Hawaii Telescope (CFHT) Gemini International Observatory James Webb Space Telescope	2020-
Funding Agency Review Panelist NASA Exoplanets Research Program (XRP) NASA Postdoctoral Program (NPP)	2021-23 2023

University Citizenship

Department of Physics and Astronomy Committee Membership Undergraduate Recruiting & Outreach	2023-
Comprehensive Exam	2023-

Graduate Admissions	2022-23
Colloquium	2022-23

University Positions

McMaster University Faculty Association (MUFA) Council member	2023-
Origins Institute – Scientific Steering Committee	2023-

Professional Memberships

Canadian Astronomical Society (CASCA) Member	2015-
American Astronomical Society (AAS) Member	2019-2022