

# Emily Deibert

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## Education

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**University of Toronto** 2017 — 2022  
PhD in Astronomy & Astrophysics  
Advisors: Prof. Suresh Sivanandam, Prof. Ray Jayawardhana

**University of Toronto, Victoria College** 2012 — 2017  
HBSc. in Astrophysics, English, and Mathematics (*High Distinction*)  
Advisor: Prof. Chris Matzner

## Refereed Publications

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### First Author .....

1. **Deibert**, de Mooij, Jayawardhana, et al., “Detection of Ionized Calcium in the Atmosphere of the Ultra-Hot Jupiter WASP-76b”, 2021, [ApJL](#), **919**, L15.
2. **Deibert**, de Mooij, Jayawardhana, et al., “A Near-Infrared Chemical Inventory of the Atmosphere of 55 Cancri e”, 2021, [AJ](#), **161**, 209.
3. **Deibert**, de Mooij, Jayawardhana, et al., “High-resolution Transit Spectroscopy of Warm Saturns”, 2019, [AJ](#), **157**, 58.

### Contributing Author .....

4. Boucher et al. incl. **Deibert**, “Characterizing Exoplanetary Atmospheres at High Resolution with SPIRou: Detection of Water on HD 189733 b”, 2021, [AJ](#), accepted.
5. Jindal, de Mooij, Jayawardhana, **Deibert**, et al., “Characterization of the Atmosphere of Super-Earth 55 Cancri e Using High-resolution Ground-based Spectroscopy”, 2020, [AJ](#), **160**, 101.
6. Petrovich, **Deibert**, & Wu, “Ultra-Short-Period Planets from Secular Chaos”, 2019, [AJ](#), **157**, 180.
7. Huang, Petrovich, & **Deibert**, “Dynamically Hot Super-Earths from Outer Giant Planet Scattering”, 2017, [AJ](#), **153**, 5.
8. Percy & **Deibert**, “Studies of the Long Secondary Periods in Pulsating Red Giants”, 2016, [JAAVSO](#), **44**, 2.

## Fellowships & Awards

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**Vanier Canada Graduate Scholarship** 2019 — 2022  
NSERC/University of Toronto  
\$ 150,000

**Fieldus Award** 2021 – 2022  
Department of Astronomy & Astrophysics, University of Toronto

<b>Dean's Doctoral Award of Excellent</b>	2020
Faculty of Arts & Sciences, University of Toronto <i>\$ 10,000</i>	
<b>Alumni Association Scholar (Graduate)</b>	2020
University of Toronto <i>\$ 1000</i>	
<b>Astronomy &amp; Astrophysics Graduate Program Award</b>	2020
University of Toronto <i>\$ 1000</i>	
<b>NSERC Canada Graduate Scholarship - Doctoral</b>	2019 — 2022 (Declined)
NSERC/University of Toronto <i>\$ 105,000</i>	
<b>Faculty of Arts &amp; Sciences Program-Level Fellowship</b>	2018 — 2020
University of Toronto <i>\$ 2300</i>	
<b>NSERC Canada Graduate Scholarship - Master's</b>	2018 — 2019
NSERC/University of Toronto <i>\$ 17,500</i>	
<b>U of T Fellowship, Faculty of Arts &amp; Sciences</b>	2017 — 2018
University of Toronto <i>\$ 12,375</i>	
<b>Ontario Graduate Scholarship</b>	2017 — 2018
OGS/University of Toronto <i>\$ 15,000</i>	
<b>Faculty of Arts &amp; Sciences Graduate Admissions Fellowship</b>	2017 — 2018
University of Toronto <i>\$ 5000</i>	
<b>Alumni Association Scholar (Undergraduate)</b>	2017
University of Toronto <i>\$ 1000</i>	
<b>Highly Commended (Literature)</b>	2017
The Undergraduate Awards	
<b>Summer Undergraduate Research Fellowship</b>	2016
University of Toronto <i>\$ 10,000</i>	
<b>Gerald Allen Hollingshead Memorial Scholarship</b>	2012 — 2016
University of Toronto <i>\$ 20,000</i>	
<b>Summer Undergraduate Research Fellowship</b>	2015
Canadian Institute for Theoretical Astrophysics <i>\$ 8000</i>	
<b>The Arthur Irwin Prize</b>	2014
Victoria College <i>\$ 1000</i>	
<b>Dr John Knowles Colling Memorial Scholarship</b>	2013
Victoria College <i>\$ 585</i>	

<b>Faculty of Arts &amp; Sciences Entrance Scholarship</b> University of Toronto \$ 2000	2013
<b>University of Toronto Scholars Award</b> University of Toronto \$ 5000	2012

## Conference Presentations & Seminars

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1. “*The Extreme Atmosphere of an Exotic World: Detection of Ionized Calcium in WASP-76b*”, Dissertation Talk, **53rd Annual Meeting of the AAS Division for Planetary Sciences (DPS)**, Virtual/AAS (October 2021). *Proceedings*: Bulletin of the AAS, **53, 7, #302.04D**.
2. “*A Near Infrared Chemical Inventory of the Atmosphere of 55 Cancri e*”, Contributed Talk, **Emerging Researchers in Exoplanetary Sciences (ERES) 2021**, Virtual/Princeton University, USA (May 2021).
3. “*A Near Infrared Chemical Inventory of the Atmosphere of 55 Cancri e*”, Invited Seminar, **APEX ExoCoffee**, Max Planck Institute for Astronomy, Heidelberg, Germany (March 2021).
4. “*Remote Sensing of Extreme Worlds: High-Resolution Spectroscopy of Exoplanet Atmospheres*”, Contributing Author on Talk by Ray Jayawardhana, **Extreme Solar Systems IV**, Reykjavik, Iceland (August 2019). *Proceedings*: AAS Extreme Solar Systems, **51, 201.01**.
5. “*High-Resolution Spectroscopy of Exoplanet Atmospheres*”, Contributed Talk, **ERES V**, Cornell University, USA (June 2019).
6. “*High-Resolution Ground-Based Transmission Spectroscopy of Warm Saturns*”, Contributed Talk, **ERES IV**, Penn State University, USA (June 2018).
7. “*High-Resolution Ground-Based Transmission Spectroscopy of Warm Saturns*”, Contributed Talk, **Technologies for ExoPlanetary Sciences (TEPS) 2018**, University of British Columbia, Canada (May 2018).
8. “*High-Resolution Ground-Based Transmission Spectroscopy of Warm Saturns*”, Contributed Talk, **The Canadian Astronomical Society (CASCA) 2018 Meeting**, University of Victoria, Canada (May 2018).
9. “*Detached Ultra-Short Period Planets from Secular Chaos*”, Contributed Talk, **Diversis Mundi: The Solar System in an Exoplanetary Context**, ESO Santiago, Chile (March 2018). *Proceedings*: [10.5281/zenodo.1317487](https://doi.org/10.5281/zenodo.1317487).
10. “*Detached Ultra-Short Period Planets from Secular Chaos*”, Invited Seminar, **Stars & Planets Seminar Series**, Canadian Institute for Theoretical Astrophysics, Toronto, Canada (March 2018).
11. “*Ultra-Short Period Planets*”, Invited Seminar, **Centre for Planetary Sciences Seminar Series**, University of Toronto Scarborough, Canada (March 2018).
12. “*Long Secondary Periods of Pulsating Red Giant Stars*”, Contributed Talk, **Canadian Conference for Undergraduate Women in Physics**, Dalhousie University, Canada (January 2016).

## Conference Posters

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1. “*A Near-Infrared Chemical Inventory of the Atmosphere of 55 Cancri e*”, Contributed Poster, **CASCA 2021 Meeting**, Virtual/University of British Columbia, Canada (June 2021).
2. “*A Near-Infrared Chemical Inventory of the Atmosphere of 55 Cancri e*”, Contributed Poster, **Exoplanets III**, Virtual/Heidelberg, Germany (July 2020).
3. “*A Near-Infrared Chemical Inventory of the Atmosphere of 55 Cancri e*”, Contributed Poster, **CASCA 2020 Meeting**, Virtual/York University, Canada (June 2020).
4. “*Near-Infrared Transit Spectroscopy of 55 Cancri e*” Contributed Poster, **Extreme Solar Systems IV**, Reykjavik, Iceland (August 2019). *Proceedings: AAS Extreme Solar Systems*, **51**, 327.03.
5. “*One Hit Wonders: Recovering the Longest Period TESS Planets*”, Contributing Author on Poster by Carl Ziegler, **Extreme Solar Systems IV**, Reykjavik, Iceland (August 2019). *Proceedings: AAS Extreme Solar Systems*, **51**, 302.01.
6. “*Investigating the Presence of HCN in the Atmosphere of 55 Cancri e*”, Contributed Poster, **ExoClimes V**, University of Oxford, UK (August 2019).
7. “*Characterizing the Atmosphere of HAT-P-12b with Transmission Spectroscopy*”, Contributed Poster, **Women in Planetary Science and Exploration**, University of Toronto, Canada (March 2018).
8. “*Dynamically Hot Super-Earths from Outer Giant Planet Scattering*”, Contributed Poster, **Canadian Conference for Undergraduate Women in Physics**, McMaster University, Canada (January 2017).
9. “*Investigating Long Secondary Periods of Pulsating Red Giant Stars*”, Contributed Poster, **Department of Physics Undergraduate Research Fair**, University of Toronto, Canada (April 2016).

## Observing Programs

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Principal Investigator .....	
<i>Molecular Signatures in the Dayside Emission of an Ultra-Hot World</i>	2022B
SPIRou/CFHT	
20 Hours	
<i>Detecting the Magnetic Field of a Hot Jupiter via Spectropolarimetry</i>	2022B
SPIRou/CFHT	
12 Hours ( <i>Followup to 2020A/2021B Proposals</i> )	
<i>First Detailed Characterization of an Exceptional New Earth-Sized World</i>	2021B
SPIRou/CFHT	
2.5 Hours ( <i>Ranked #1 of 39 by CanTAC</i> )	
<i>Detecting the Magnetic Field of a Hot Jupiter via Spectropolarimetry</i>	2021B
SPIRou/CFHT	
12 Hours ( <i>Followup to 2020A Proposal</i> )	

*Detecting the Magnetic Field of a Hot Jupiter via Spectropolarimetry* 2020A  
 SPIRou/CFHT  
 20 Hours (*Ranked #1 of 40 by CanTAC*)

*Constraining the Ephemerides of a New Young Planetary System* Cycle 1 (2019)  
 NEOSat

*Constraining the Carbon Abundance of a Super-Earth Atmosphere* 2019A  
 SPIRou/CFHT  
 10 Hours

**Co-Investigator** .....

*Exploring the Diversity of Exoplanet Atmospheres at High Resolution* 2020 — 2023  
 GRACES/Gemini North  
 224 Hours

*Observing CO & CO<sub>2</sub> in Solar System Planets at High Spectral Resolution* 2020A  
 GIANO/TNG  
 0.5 Nights

*Characterizing the Atmosphere of the Extremely Hot Jupiter Kepler-13Ab* 2019A  
 GRACES/Gemini North  
 10 Hours

*The Chemical Inventory of Exoplanet tau Bootis b* 2019A  
 SPIRou/CFHT  
 10 Hours (*Ranked #1 of 28 by CanTAC*)

*Understanding How Tight Binaries Affect TESS Planets* 2019A  
 SOAR  
 4 Nights

**Workshop Attendance**

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**ESO Atmospheres Workshop** Summer 2021  
 ESO Garching/Virtual

**Early Release Science Pre-Launch Data Hackathon** Summer 2021  
 JWST/Virtual

**Helping Astronomers: A Workshop on Teaching Climate Change** Fall 2019  
 CASCA/Virtual

**ComSciConCAN: Science Communication Workshop** Summer 2019  
 McMaster University, Canada

**Multi-Dimensional Characterization of Distant Worlds** Fall 2018  
 University of Michigan, Ann Arbor

**Additional Research Experience**

**Graduate Research Experience** .....

**Graduate Research Course** Summer 2018  
 University of Toronto  
 Advisor: Diana Valencia  
*Modelling tidal dissipation in super-Earth interiors.*

**Graduate Research Course** 2017 — 2018  
 University of Toronto  
 Advisor: Ray Jayawardhana  
*High-resolution optical spectroscopy of warm Saturn atmospheres.*

**Undergraduate Research Experience** .....

**Undergraduate Research Assistant** Summer 2017  
 Canadian Institute for Theoretical Astrophysics  
 Advisor: Cristobal Petrovich  
*Simulating the origins and dynamics of ultra-short period planets.*

**Undergraduate Research Thesis** 2016 — 2017  
 University of Toronto  
 Advisor: Chris Matzner  
*Observing starforming regions in the Dragonfish Nebula.*

**Undergraduate Research Assistant** Summer 2016  
 Dunlap Institute for Astronomy & Astrophysics  
 Advisors: Chelsea Huang & Cristobal Petrovich  
*Simulating the dynamics of Kepler super-Earths with outer giant planets.*

**Undergraduate Research Assistant** 2015 — 2016  
 University of Toronto  
 Advisor: John Percy  
*Studying the long secondary periods of pulsating red giant stars.*

**Undergraduate Research Assistant** Summer 2015  
 University of Toronto  
 Advisors: Marten van Kerkwijk & Ue-Li Pen  
*Observing and studying giant pulses and scintillation from the Crab pulsar.*

**Teaching Experience**

**Teaching Assistant** Fall 2021  
 AST101: The Sun and its Neighbours (U of T)

**Teaching Assistant** Fall 2020  
 AST301: Observational Astronomy (U of T)

**Course Development Support** Summer 2020  
 AST301: Observational Astronomy (U of T)  
*Hired to redesign course content for online format during COVID-19*

**Summer Teaching Assistant** Summer 2020  
 AST101: The Sun and its Neighbours (U of T)

**Senior Teaching Assistant** Winter 2020  
 AST201: Stars and Galaxies (U of T)

**Senior Teaching Assistant** Fall 2019  
 AST101: The Sun and its Neighbours (U of T)

**Summer Teaching Assistant** Summer 2019  
 AST201: Stars and Galaxies (U of T)

<b>Head Teaching Assistant</b> AST201: Stars and Galaxies (U of T) <i>Head TA for a team of 30+ TAs</i>	Winter 2019
<b>Head Teaching Assistant</b> AST101: The Sun and its Neighbours (U of T) <i>Head TA for a team of 30+ TAs</i>	Fall 2018
<b>Summer Teaching Assistant</b> AST251: Life on Other Worlds (U of T)	Summer 2018
<b>Teaching Assistant</b> AST251: Life on Other Worlds (U of T) <i>Helped redesign course content</i>	Winter 2018
<b>Teaching Assistant</b> ASTC25: Astrophysics of Planetary Systems (U of T Scarborough)	Winter 2018
<b>Senior Teaching Assistant</b> AST201: Stars and Galaxies (U of T)	Winter 2018
<b>Teaching Assistant</b> AST101: The Sun and its Neighbours (U of T)	Fall 2017
<b>Undergraduate Teaching Assistant</b> AST201: Stars and Galaxies (U of T)	Winter 2017
<b>Undergraduate Teaching Assistant</b> AST201: Stars and Galaxies (U of T)	Winter 2016

## Relevant Work Experience

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<b>Public Outreach Support</b> Dunlap Institute for Astronomy & Astrophysics	2021 — Present
<b>Science Communications Associate</b> Research2Reality	2018 — Present
<b>Astronomy Library Assistant</b> University of Toronto	2017

## Outreach

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### Public Lectures, Panels, Workshops, & Presentations .....

<b>Workshop on Science Writing</b> Canadian Association of Physicists	June 2022
<b>Planet Gazing Party Host</b> Dunlap Institute for Astronomy & Astrophysics	September 2021
<b>Panel Discussion on Creating a CV</b> U of T Summer Undergraduate Research Program	Summer 2021
<b>Public Talk: The Extraordinary Worlds of Exoplanets</b> Richmond Hill Public Library	February 2021
<b>Planet Gazing Party Panelist</b> Dunlap Institute for Astronomy & Astrophysics	September 2020
<b>Public Talk: Astronomy Night</b> David Dunlap Observatory/RASC Toronto Centre	July 2020

<b>Astro at Home Talk: Extraordinary Exoplanets</b> Discover the Universe	April 2020
<b>Panel Discussion on Astronomy</b> Toronto Astronomy & Space Exploration Society	November 2019
<b>Astronomy on Tap: An Astronomer’s Guide to Finding Exoplanets</b> Astronomy on Tap Toronto	June 2019
<b>Lecturer for Discover the Universe Teacher’s Workshop</b> Discover the Universe	April 2019
<b>Panel Discussion on Graduate School</b> Astronomy Undergraduates Union	January 2019
<b>NSERC Scholarship Application Workshop</b> University of Toronto (Created, organized & led workshop)	November 2018
<b>Science Writing Workshop</b> University of Toronto (Created, organized & led workshop)	September 2018
<b>Public Talk: A New Window on Exoplanet Atmospheres</b> Graduate Speaker Series, University of Toronto	April 2018
<b>Public Talk for the Canadian Space Society January Meeting</b> Canadian Space Society	January 2018

**Mentorship .....**

<b>Graduate-Undergraduate Mentor</b> Mentor to undergraduate student.	2020 — 2021
<b>Girls SysTEM Women in STEM Mentor</b> Mentor to high school student.	2019 — 2020
<b>Graduate Peer Mentor</b> Mentor to incoming graduate students.	2018 — 2020

**Other Outreach Work .....**

<b>ComSciConGTA Conference Organizing Committee</b> Communicating Science Conference (ComSciCon) Series	2019 — 2020
<b>SpaceTime Event Volunteer</b> Dunlap Institute for Astronomy & Astrophysics	2019 — Present
<b>“Ask an Astronomer” Email Account Manager</b> University of Toronto	2018 — 2020
<b>“Science Around Town” Weekly Columnist</b> <i>The Varsity</i> Newspaper, University of Toronto	2018 — 2019
<b>Staff Science Writer</b> <i>The Varsity</i> Newspaper, University of Toronto	2017 — 2020
<b>Solar Eclipse Event Volunteer</b> Canadian National Exhibition	2017
<b>Telescope Coordinator &amp; Event Volunteer</b> Toronto Chinatown Festival	2017
<b>Astronomy on Tap Volunteer</b> Astronomy on Tap Toronto	2015 — Present
<b>AstroTours Volunteer</b> University of Toronto	2015 — Present



## Service Work

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<b>Referee</b> CFHT Time Allocation Committee	2022 — Present
<b>President</b> Graduate Astronomy Students Association, University of Toronto	2019 — 2020
<b>Director Search Committee Member</b> Dunlap Institute for Astronomy & Astrophysics	2020
<b><i>Elemental</i> Mental Health Magazine Executive Editor</b> Grad Minds, University of Toronto	2019 — 2020
<b>Department Chair Search Committee Member</b> Department of Astronomy & Astrophysics, University of Toronto	2019 — 2020
<b>Science Discussion Group Facilitator</b> Department of Astronomy & Astrophysics, University of Toronto	2018 — 2019
<b>CASCA Student Representative</b> Canadian Astronomical Society	2018 — 2019
<b>Mental Health Committee Member</b> Department of Astronomy & Astrophysics, University of Toronto	2017 — 2019
<b>Astronomy Undergraduates Liaison</b> Graduate Astronomy Students Association	2017 — 2019
<b>Astronomy Undergraduates Union (AU) Co-Founder</b> University of Toronto	2017

## Professional Development

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<b>Graduate Professional Skills Development Certification</b> School of Graduate Studies, University of Toronto	2017 — Present
<b>Advanced Undergraduate Teaching Certification</b> Teaching Assistant Training Program, University of Toronto	2018 — 2020
<b>SafeTALK Suicide Awareness &amp; Intervention Training</b> University of Toronto/Living Works	2019
<b>Teaching Fundamentals Certification</b> Teaching Assistant Training Program, University of Toronto	2017 — 2018

## Select Media Appearances

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1. *“Researchers investigate an ‘ultra-hot Jupiter’ with iron rain and calcium wind”*, Quirks & Quarks, CBC Radio, October 2021.
2. *“Bizarre, scorching exoplanet WASP-76 b may be even hotter than we thought”*, SPACE.com, October 2021.
3. *“Inferno-like WASP-76b exoplanet where iron gets vaporized and falls from the sky like rain is even HOTTER than first thought, study finds”*, The Daily Mail, October 2021.
4. *“This exoplanet rains iron. And scientists say temperatures can hit a scorching 4,000 degrees”*, USA Today, October 2021.
5. *“Planet with iron rainfall is even more extreme than scientists thought”*, CNN, October 2021.

6. *“Quirks & Quarks Listeners’ Questions Episode”*, Quirks & Quarks, CBC Radio, June 2021.
7. *“Astronomy PhD student Emily Deibert awarded A&S Doctoral Excellence Scholarship”*, U of T News, November 2020.
8. *“Wander the Night Sky”*, CIBC Private Wealth Newsletter, August 2020.
9. *“A Faraway Solar System Looks Eerily Similar to Our Own”*, The Atlantic, July 2020.
10. *“Catching Up With “Award of Excellence” Winner Emily Deibert”*, Dunlap Institute for Astronomy & Astrophysics, April 2020.
11. *“Astronomy PhD Student Named a 2019 Vanier Scholar for Research on Exoplanets”*, The Varsity, University of Toronto, October 2019.
12. *“Meteor Sighting Lights up Night Sky”*, The Manitoulin Expositor, December 2018.
13. *“Solar Telescopes and Solar Eclipse Viewing”*, CTV News Broadcast Interview, August 2017.
14. *“Solar Eclipse Glasses and Safety”*, CTV News Broadcast Interview, August 2017.
15. *“Starfinders: The Campaign for U of T Astronomy”*, Dunlap Institute for Astronomy & Astrophysics, February 2017.

## Press Releases

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1. *“Spectrum reveals extreme exoplanet is even more exotic”*, Dunlap Institute for Astronomy & Astrophysics, University of Toronto, October 2021.
2. *“Spectrum reveals extreme exoplanet is even more exotic”*, Cornell Chronicle, Cornell University, October 2021.
3. *“Scientists reveal extreme exoplanet is even more exotic than they thought”*, Queen’s University Belfast, October 2021.

## Select Science Writing

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*100+ science news articles written for a range of media outlets. Full portfolio available [online](#).*

1. *“Einstein Was Right, and Now We Have the Proof”*, Research2Reality, July 2021.
2. *“How Much Stuff is There in the Universe?”*, New Scientist, August 2020.
3. *“Was the Milky Way a Quasar?”*, PBS Space Time, April 2020.
4. *“Astronomers Now Have Some Idea of How the First Stars Died”*, Massive Science, June 2019.