

# LISA DANG, Ph.D.

BANTING SCHOLAR | ASTROPHYSICIST | SCIENCE COMMUNICATOR

## CONTACT DETAILS

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Canadian Nationality  
FR/EN proficiency

## RESEARCH INTERESTS

*Atmospheric Characterization:* infrared astronomy, exoplanet mapping, Hot Jupiters and USP, space-based observations, detector systematics characterization

*Planetary Gravitational Microlensing:* detector systematics characterization, exoplanets demographics

## PROFESSIONAL APPOINTMENT

2022 - 2024 Banting Postdoctoral Scholar, Université de Montréal  
2016 - 2022 Graduate Researcher at McGill University, Montreal  
2017 Visiting Graduate Researcher Fellow at Caltech/IPAC, Pasadena  
2015 Research Assistant, Leiden University, Netherlands  
2011 - 2015 Sales Associates, American Eagle Outfitters, Montreal

## EDUCATION

2022 PhD in Physics, McGill University, Montreal  
Advisor: Nicolas Cowan  
Fast-tracked to PhD in 2018 from masters degree  
2016 B.Sc, Honours Physics, McGill University, Montreal  
Thesis Advisor: Andrew Cumming

## SELECTED AWARDS & RECOGNITIONS

2024 - 2025 Trottier Postdoctoral Fellowship, Institut de Recherche sur les Exoplanètes (\$70k)  
2022 - 2024 Banting Postdoctoral Fellowship, NSERC (\$140k)  
2021 - 2022 Canada Graduate Scholarships - Doctoral, NSERC (\$35k/yr)  
2019 - 2021 Post-Graduate Scholarships - Doctoral, NSERC (\$21K/yr)  
2019 Principal Prize for Public Engagement (Special Recognition), McGill University  
2018 - 2022 PhD Trainee Fellowship, Technologies in Exo-Planetary Sciences (\$10k/yr)  
2018 Mary Louise Taylor Award, Department of Physics, McGill University (\$12k)  
2018 Relève Étoile Louis-Berlinguet Award, Fonds de Recherche du Québec (\$1k)  
2017 Visiting Graduate Research Fellowship, California Institute of Technology (\$18k)

## PUBLICATIONS

### Supervised Undergraduate Students

#### *1st-2nd AUTHOR*

1. Revisiting the Iconic Spitzer Phase Curve of 55 Cancri e: Hotter Dayside, Cooler Nightside and Smaller Phase Offset  
Mercier S., Dang L., Gass A., et al. accepted in AJ
2. Thermal Phase Curves of XO-3b: an Eccentric Hot Jupiter at the Deuterium Burning Limit  
Dang L., Bell T. J., Cowan N. B., et al. 2022, AJ, in press
3. A Comprehensive Reanalysis of Spitzer's 4.5 $\mu$ m Phase Curves and the Phase Variation of the Ultra-Hot Jupiters MASCARA-1b and KELT-16b  
Bell T. J., Dang L., Cowan N. B., et al., 2021, MNRAS, 504, 3316-3337
4. Pixel Level Decorrelation in Service of the Microlensing Parallax Spitzer Campaign  
Dang L., Calchi Novati S., Carey S., et al., 2020, MNRAS, 497, 5309-5317
5. Detection of a Westward Hotspot Offset in the Atmosphere of a Hot Gas Giant CoRoT-2b  
Dang L., Cowan N. B., Schwartz, J. C., et al. [incl. Sundararajan S.], 2018, Nature Astronomy, 2, 220
6. How Astronomer View Education and Public Outreach  
Dang L., Russo P., 2015, Communicating Astronomy with the Public Journal, 18, 16

#### *Nth AUTHOR*

1. The Roasting Marshmallows Program with IGRINS on Gemini South I: Composition and Climate of the Ultra Hot Jupiter WASP-18 b  
Brogi, M., Emeka-Okafor, V., Line, M., et al., submitted to AAS Journal
2. ATOCA: an algorithm to treat order contamination. Application to the NIRISS SOSS mode  
Darveau-Bernier, A., Albert, L., Talens, G. J., et al., accepted in PASP
3. Hot Jupiter Population Trends: A New Analysis of 8 Spitzer Phase Curves: QATAR-1b, QATAR-2b, WASP-52b, WASP-34b, and WASP-140b  
May E., Stevenson K., Bean, J., et al., 2022, AJ, 163, 6, 18
4. K2 and Spitzer phase curves of the rocky ultra-short-period planet K2-141 b hint at a tenuous rock vapor atmosphere  
Zieba S., Zilinskas M., Kreidberg L., et al., A&A, accepted
5. Smaller than Expected Bright-spot Offsets in Spitzer Phase Curves of the Hot Jupiter Qatar-1b  
Keating D., Stevenson K., Cowan, N. B., et al., 2020, AJ, 159, 225
6. Evidence for H<sub>2</sub> Dissociation and Recombination Heat Transport in the Atmosphere of KELT-9b  
Mansfield M., Bean J., Stevenson, K., 2020, ApJL, 888, L15
7. Mass loss from the exoplanet WASP-12b inferred from Spitzer phase curves  
Bell T. J., Zhang M., Cubillos P., Dang, L., et al., 2019, MNRAS, 489, 1995-2003
8. Uniformly Hot Nightside Temperature on Short-Period Gas Giants  
Keating D. Cowan, N. B., Dang, L., 2019, Nature Astronomy, 3, 1092-1098

#### *Non-Refereed*

1. Exoplanet instrumentation in the 2020s: Canada's pathway towards searching for life on potential- ly Earth-like exoplanets  
Benneke B., Cowan N. B., et al., 2019, Canadian Long Range Plan for Astronomy and Astrophysics White Papers, 2020, 65
2. What do you think of Public Outreach in Astronomy?  
Dang L., Russo P., Entradas M., 2015, KAI'ALELEIAKA: Newspaper of the IAU XXIX General Assembly

## SCIENTIFIC & PUBLIC TALKS & WORKSHOP ATTENDANCE

### *Selected Invited Talks, Seminars and Lunch Talks*

- 2021 University of Toronto Astro-ph, Toronto, Ontario
- 2021 University of Washington Astrophysics Series, Virtually in Seattle, WA (*invited*)
- 2021 University of Michigan Stars & Planets Seminar, Ann Arbor, MI (*invited*)
- 2021 Harvard CfA Seminar, Virtually in Cambridge, MA (*invited*)
- 2021 Leiden Observatory Lunch Talk, Virtually in Leiden, Netherlands
- 2021 Ohio State University Exoplanets Talk Series, Virtually in Columbus, OH
- 2021 Caltech IPAC Seminar, Virtually in Pasadena, CA (*invited*)
- 2020 NASA JPL Astrophysics Seminar, Pasadena, CA (*invited*)
- 2018 Institut de Recherche sur les Exoplanètes Annual Meeting, Montreal, QC (*invited*)

### *Selected Contributed Talks*

- 2022 240th AAS Meeting, Pasadena, California
- 2022 Consortium on Habitability and Atmospheres of M-dwarf Planets ECR Highlight, Online
- 2021 Ariel Mission Consortium, Online
- 2021 237th AAS Meeting, Online
- 2019 Canadian Astronomical Society, Montreal, CA
- 2019 Technologies in Exo-Planetary Sciences, York University, Toronto, CA
- 2019 Centre de Research en Astrophysics du Quebec, St-Alexis-des-Monts, CA
- 2018 Women in Physics Canada Conference, Universite de Sherbrooke, CA
- 2018 Technologies in Exo-Planetary Sciences, UBC, Vancouver, CA
- 2017 Greater IPAC Science Symposium, Caltech, Pasadena, California

### *Selected Public Talks*

- 2022 The Physics Hour, Canadian Association of Physicists, virtual
- 2022 International Day of Women and Girls in Science, NSERC, virtual
- 2022 Panel Parlons-Lunaire, Let's Talk Science & Canadian Space Agency, virtual
- 2022 NASA's Universe of Learning Science Briefing, NASA, virtual
- 2021 An Evening with Webb Panel, McGill Space Institute and iREx, virtual
- 2020 Sun and Science: Why Physics Matters?, McGill University, virtual
- 2020 Celebrating the Legacy of the Spitzer Space Telescope, Dawson College, MTL, QC
- 2019 Fantastic Planets and Where to Find Them, Vanier College, Montreal, QC
- 2019 La Chasse aux MACHOS, Astrolab, Mont-Megantic, QC
- 2019 STEM Support Group Panelist, McGill University, Montreal, QC
- 2018 Exoplanet Hunting 101, Marianopolis College, Montreal, QC
- 2018 Les petits MACHOs: à la recherche de planètes invisibles, Astronomie en Fût, MTL, QC

### *Selected Workshop Attendance*

- 2022 Diversity of Rocky Planets, Lorentz Center, Leiden, NL
- 2019 Microlensing 23 Hack Session, Flatiron Institute CCA, New York City, NY
- 2017 JWST Proposal Planning Workshop, Caltech, Pasadena, California
- 2017 21st International Microlensing Conference, Caltech, Pasadena, California

## SUCCESSFUL OBSERVING PROPOSALS & GRANTS

- 2021 Mapping of the Surface and Atmosphere of a Lava Planet  
Canadian Space Agency JWST Cycle 1 Funding (\$30K) PI: L. Dang
- 2021 A Hell of a Phase Curve: Mapping the Surface and Atmosphere of a Lava Planet  
James Webb Space Telescope, 24.9 hours, PI: L. Dang
- 2021 Inside out: detecting a rock vapor atmosphere on the lava world TOI-2431 b  
Hubble Space Telescope, 11 orbits, PI: S. Quinn, Co-I include L. Dang
- 2021 Real Time Exoplanet Meteorology  
James Webb Space Telescope, 25 hours, PI: J. Sikora Co-I includes L. Dang
- 2021 Roasting Marshmallows: Disentangling Composition & Climate in Hot Jupiter  
Gemini Observatory, 14.5 hrs, PI: M. Line, Co-I L. Dang
- 2020 The Life and Death of Ultra-Hot Jupiters WASP-12b  
Hubble Space Telescope, 44 orbits, PI: T. J. Bell, Co-I includes L. Dang
- 2018 A Test of the Fundamental Physics Underlying Exoplanet Climate Models  
Spitzer Space Telescope, 44.2 hours, PI. T. Beatty, Co-I includes L. Dang
- 2018 Revealing Fact or Fiction in Spitzer Exoplanet Phase Curve Trends  
Spitzer Space Telescope, 620 hours, PI. J. Bean, Co-I includes L. Dang

## STUDENT RESEARCH ADVISING

- 2022 Tarik Bouchoutrouch-Ku (ugrad) - McGill U.  
High Precision Photometry for Spitzer Microlensing
- 2021 - 2022 Samson Mercier (ugrad) - McGill U. → *now M. Sc. student at U. Geneva*  
Re-analysis of the Spitzer/IRAC Phase Curve of 55 Cnc e
- 2021 Alex Gass (ugrad) - McGill U. → *now Software Dev at Morgan Stanley*  
Re-analysis of the Spitzer/IRAC Phase Curve of 55 Cnc e
- 2016 Sudarsan Sundararajan (ugrad) - Google SoC → *now Software Eng at Bloomberg*  
Project: High-Precision Photometry with the Spitzer Space Telescope

## SERVICES & COMMITTEES

- 2020 - 2021 VP Professional Development, McGill Graduate Association of Physics Stud.
- 2020 - 2021 Referee, Astronomical Journal, MNRAS
- 2016 - 2020 Co-Founder and Organizer, McGill Physics Hackathon
- 2018 - 2019 Conference LOC Member, Women in Physics Canada Conference
- 2016 LOC Volunteer, Exoclimes IV

## TEACHING ROLES

- 2017 - 2020 Guest Lecturer (PHYS 182), McGill University
- 2018 - 2020 CEGEP (pre-university college) Seminar Speaker
- 2016 - 2020 Teaching Assistant and Lab Instructor, McGill University
- 2014 - 2015 Tutor, School Success

## SELECTED OUTREACH AND SCI-COM ROLES

2020 - Curr. Volunteer Science Communicator, iREx at Université de Montréal  
2018 - 2021 AstroMcGill Chair Member, McGill Space Institute  
2018 - 2020 Physics Outreach Coordinator, Department of Physics at McGill University  
2018 Scientific Consultant, Kurzgesagt - In a Nutshell Youtube Channel  
2017 Volunteer at the Spitzer Space Telescope at Explore JPL, NASA JPL  
2017 Science Fair Coordinator, Montreal Science Center & Eureka Festival

## SELECTED MEDIA COVERAGE & INTERVIEW

### TV INTERVIEW & VIDEOS

[What the first images from JWST show us](#), Seeker by The Verge  
[Journée internationale des femmes et des filles de science](#), NSERC & EBTSOYP  
[Research offers new insights into planets outside our solar system](#), Global News Live  
[AAS 239 Press Conference: Exoplanets & Their Atmospheres](#), American Astronomical Society  
[Le Projet Neptune: Chers Futurs Scientifiques](#), Fondation Bleu Metropolis  
[Two key contributions to the James Webb space telescope](#), CTV News  
[Canada's crucial role in the creation of James Webb telescope](#), Global News  
[Exobouchée: Terre 2.0](#), Institut de Recherche sur les Exoplanètes

### PODCASTS & RADIO INTERVIEWS

[Into the World of Lisa Dang](#), SPACEpod with Dawson College Students  
[Moteur de Recherche - Taille de l'univers](#), Jun 10 2022, Radio-Canada  
[Moteur de Recherche - Microlentilles Gravitationnelles](#), Feb 18 2022, Radio-Canada  
[Exoplanètes et galaxies lointains dans le mire du James Webb](#), Radio-Canada  
[Finding Exoplanets in Montreal](#), Plateau\_Astro Splashdown Podcast  
[Exoplanets & Telescopes](#), Abstract: Future of Science Podcast  
[The James Webb Space Telescope](#), Vox Unexplainable Podcast

### NEWS ARTICLES

[Landmark Webb telescope releases first science image — astronomers are in awe](#), Nature  
[XO-3b: what the enormous 'hot Jupiter' could tell us about our universe](#), CTV News  
[Scorching alien planet takes seasons to an extreme](#), Space.com  
[NASA's Spitzer Illuminates Exoplanets in Astronomical Society Briefing](#), NASA.gov  
[Opening the Universe with the James Webb Space Telescope](#), Skynews.ca  
[This Canadian astronomer will be among its first users](#), Toronto Star  
[The \\$11-billion Webb telescope aims to probe the early Universe](#), Nature News Feature  
[This tiny iron-rich world is extraordinarily metal](#), Nature News  
[Cinq chercheurs québécois qui pourront utiliser le télescope James-Webb](#), Quebec Science  
[A McGill Astronomer Will Be One Of The First People Ever To Map A 'Lava Planet'](#), MTLblog  
[The largest space telescope in History is about to blow our minds](#), Voxdotcom  
[Overture to Exoplanets](#), Eos: Science News by the American Geophysical Union  
[James Webb Space Telescope: Scientists in Canada will be among the first to peer into the universe with this telescope](#), Canadian Space Agency  
[Des vents défient nos théories sur l'exoplanète CoRoT-2b](#), Radio-Canada  
["Wrong-way" Winds on CoRoT-2b](#), NASA Jet Propulsion Lab  
[Dynamical theory driven west on CoRoT-2b](#), Nature News and Views  
[Weird Winds Blow the 'Wrong Way' on Scorching Hot Exoplanet](#), Space.com