

Education

McGill University

PHD, PHYSICS

Montréal, Quebec

Sept. 2021 - present

- advisor: Dr. Eve J. Lee
- thesis title: “Planet Formation and Interiors Across Space and Time”
- topic: theoretical planet formation
- tools: MESA hydrodynamics code, REBOUND dynamics code, Python, gnuplot, Fortran

McGill University

MSc, PHYSICS

Montréal, Quebec

Sept. 2019 - Sept. 2021

- advisor: Dr. Eve J. Lee
- thesis title: “Leveraging Exoplanet Occurrence Rates to Test Planet Formation Theory”
- topic: theoretical planet formation

University of Western Ontario

HONOURS SPECIALIZATION, PHYSICS

London, Ontario

Sept. 2015 - April, 2019

- honours thesis advisor: Dr. Paul Wiegert
- thesis title: “The Dynamics of Interstellar Asteroids and Comets Within the Galaxy”
- topic: dynamics

Publications

PUBLISHED

Hallatt, T, Lee, Eve J., 2021. Sculpting the sub-Saturn Occurrence Rate via Atmospheric Mass Loss. *Astrophysical Journal*, vol. 924, no. 9; <https://iopscience.iop.org/article/10.3847/1538-4357/ac32c9>

Hallatt, T, Lee, Eve J., 2020. Can Large-Scale Migration Explain the Giant Planet Occurrence Rate? *Astrophysical Journal*, vol. 904, no. 2; <https://iopscience.iop.org/article/10.3847/1538-4357/abc1d7>

Hallatt, T, Wiegert, Paul, 2020. The Dynamics of Interstellar Asteroids and Comets within the Galaxy: an Assessment of Local Candidate Source Regions for 1I/’Oumuamua and 2I/Borisov. *Astronomical Journal*, vol. 159, no. 4; <https://iopscience.iop.org/article/10.3847/1538-3881/ab7336>

SUBMITTED OR IN-PREP

Hallatt, T, Lee, Eve J., 2023. On the Planet-Forming Environment of the Milky Way’s Thick Disk (in prep).

Cadioux, Charles, ... **Hallatt, T**, ... 2023. New Mass and Radius Constraints on the LHS 1140 Planets – LHS 1140 b is Either a Temperate Mini-Neptune or a Water World (submitted).

WHITE PAPERS

Benneke, Bjorn, ... **Hallatt, T**, ... 2019. Exoplanet instrumentation in the 2020s: Canada’s pathway towards searching for life on potentially Earth-like exoplanets. Canadian Long Range Plan for Astronomy and Astrophysics White Papers, LRP2020. Online at <https://www.zenodo.org/communities/lrp2020>, id.65 <https://ui.adsabs.harvard.edu/abs/2019clrp.2020...64B/abstract>

Seminars & Presentations

September 2023. *On the Planet-Forming Environment of the Milky Way’s Thick Disk*. Stars & Planets Seminar, Yale University, USA. (Invited)

July 2023. *On the Formation of Planets in the Milky Way’s Thick Disk*. Oral presentation. Towards Other Earths III: the Planet-Star Connection, Instituto de Astrofísica e Ciências do Espaço, Porto, Portugal

June 2023. *On the Formation of Planets in the Milky Way's Thick Disk*. Oral presentation. Emerging Researchers in Exoplanet Science, Yale University, USA.

May 2021. *Sculpting the sub-Saturn Occurrence Rate via Atmospheric Mass Loss*. Oral presentation. High Energy Exoplanets, European Space Agency XMM-Newton Workshop, Online.

November 2020. *Can Large-Scale Migration Explain the Giant Planet Occurrence Rate?*. Oral presentation. ExoDem Conference, Caltech, Online.

October 2020. *Can Large-Scale Migration Explain the Giant Planet Occurrence Rate?*. Oral presentation. Exocoffee, Max Planck Institute for Astronomy, Online.

August 2020. *The Dynamics of Interstellar Asteroids and Comets Within the Galaxy*. Oral presentation. Division of Dynamical Astronomers Meeting, Online. Link to presentation: <https://vimeo.com/442145831>

June 2020. *The Dynamics of Interstellar Asteroids and Comets Within the Galaxy*. Poster presentation. American Astronomical Society meeting, Online.

Select Awards, Fellowships, & Grants

2021	Alexander Graham Bell CGS-D , NSERC	\$ 105,000
2021	Perseverance Scholarship , McGill University	\$ 1200
2022	Trottier Space Institute Graduate Award , McGill University	\$ 1200
2021	L. Trottier Science Accelerator fellowship , McGill University	\$ 5000
2020	Alexander Graham Bell CGS-M , NSERC	\$ 17,500
2020	Technologies for Exoplanetary Science Fellowship , NSERC	\$ 7000
2019	Donald R. Hay Prize (for best thesis) , Physics & Astronomy Dept., University of Western Ontario	\$ 300
2019	Dr. Gérard Hébert Scholarship in Physics (for community service, academic excellence, research potential) , Physics & Astronomy Dept., University of Western Ontario	\$ 1700
2018	Ontario Baden-Württemberg Research Fellowship , Government of Ontario	\$ 4000
2018	Western Global Opportunities Award , University of Western Ontario	\$ 1000
2018	Western International Experience Award , University of Western Ontario	\$ 1000
2017	NSERC Undergraduate Student Research Award , Physics & Astronomy Dept., University of Western Ontario	\$ 8000

Additional Research Experience

University of Tübingen; Institute for Theoretical Astrophysics

Tübingen, Germany

ADVISOR: DR. ROLF KUIPER

May 2018 - Aug. 2018

- radiation-hydrodynamics simulations of HII regions
- tools: **PLUTO** hydrodynamics code, **Makemake** & **Sedna** radiation transport and photoionization solvers

Media Citations

Astronomy Magazine: Our Galaxy's Marvelous Rogues and Misfits; <https://astronomy.com/magazine/news/2021/04/our-galaxys-marvelous-rogues-and-misfits/>

Scientific American: Mystery of Interstellar Visitor 'Oumuamua Gets Trickier; <https://www.scientificamerican.com/article/mystery-of-interstellar-visitor-oumuamua-gets-trickier/>

Nature: How Two Intruders From Interstellar Space are Upending Astronomy; <https://www.nature.com/articles/d41586-019-03530-3>