

Dylan L. Jow

PhD Candidate | Canadian Institute for Theoretical Astrophysics
60 St George St, Toronto ON, M5S 3H8, Canada
E-Mail: djow@physics.utoronto.ca

Education

- 2014 – 2018** BSc. in Combined Honours Physics and Mathematics with Distinction, from the University of British Columbia (UBC)
- 2018 – present** PhD in Physics at the Department of Physics, University of Toronto and the Canadian Institute for Theoretical Astrophysics (expected completion: Spring 2024)

Academic Employment

- Undergraduate research studying CMB cosmology at the University of British Columbia, **2017 – 2018**
with Dr. Douglas Scott
- Summer research term studying supernova cosmology at the Imperial College London, **June – August 2017**
with Dr. Roberto Trotta
- Summer research term studying quantum dots at the UBC Centre for High Throughput, **May – August 2016**
Phenogenomics

Teaching Experience

- Instructor for PHY483, Relativity Theory I, at the UofT Department of Physics** **2022**
- In the fall term of 2022, I took over as the full instructor of PHY 483 as the original professor unexpectedly required medical leave, having TAed the course for three years previously. This involved delivering lectures; making, administering, and grading learning assessments. For my work in this course, I was awarded the Van Kranendonk teaching award.
- Teaching Assistant for UofT Department of Physics** **2018 - Present**
- Teaching Assistant (Grader) for UBC Department of Mathematics** **2015 – 2017**

Leadership

- GPT-4 for Astronomy Exploratory Committee** **2023**
- Participated in pilot study of new generative AI technology in astronomy research. Reported findings to general CITA community.
- Canadian Institute for Theoretical Astrophysics Visitors Committee** **2021 - Present**
- Responsibilities included inviting speakers and facilitating visits to CITA.
- Scintillometry 2022 Conference Organizing Committee** **2022**
- Executive of the Physics Graduate Student Association at UofT** **2019 – 2020**
- Responsibilities included organizing social events and advocating for student concerns within the Department of Physics.

Outreach and Lay Publications

Dylan L. Jow, "Opinion: Grades are failing students", *The Varisty*, <https://thevarsity.ca/2023/02/04/opinion-im-a-u-of-t-instructor-and-i-believe-we-need-to-abolish-grades/>, February 4, 2023

Dylan L. Jow, "Wonder and Awe in Astronomy", *Cosmos From Your Couch*, <https://www.dunlap.utoronto.ca/events/wonder-and-awe-in-astronomy/>, June 18, 2022

Awards and Scholarships

Van Kranendonk Teaching Assistant Award	2023
Mitacs Globalink Research Award,	2022
NSERC Canada Graduate Scholarship – Doctoral	2021
Ontario Graduate Scholarship	2019
UofT Faculty of Arts and Science Admission Award	2018
Thomas and Evelyn Hebb Memorial Scholarship	2017
Stanley M Grant Scholarship in Mathematics	2017
Stanley M Grant Scholarship in Mathematics	2016
J Fred Mui Memorial Scholarship in Science	2015
Janusz J. Klawe Memorial Science One Scholarship	2015
Governor General's Academic Bronze Medal	2014

Select Student Evaluations

"[Dylan] has provided some of the best teaching I've received throughout my four years at UofT and is very supportive and understanding of the class and its needs." – From PHY483 Student Evaluations, Fall 2022

"[Dylan] is an exceptional example of going to great lengths to ensure you learn the material, and then going a step beyond to do a little more." – From PHY483 Student Evaluations, Fall 2022

Conference Talks and Presentations

"Wave lensing for precision cosmology"	2023
Coffee talk at the Department of Astrophysical Sciences, Princeton University	
"FRB lensing: probing matter inhomogeneities transverse to the line of sight"	2023
Invited talk for Peng Oh's group at UCSB	
"Real-time tunneling through complexified path integrals"	2023
String Theory Seminar at National Taiwan University	
"Where have all the lenses gone? Scattering of gravitationally lensed FRBs"	2023
2023 FRB Conference at the National Chung Hsing University	
"Prospects for gravitational and plasma lensing of FRBs"	2023
Lunch Talk at ASIAA	
"Cusps of cusps: a universal model for extreme scattering in the ISM"	2022
Cosmology Discussion Group at the Perimeter Institute	
"Cusps of cusps: a universal model for extreme scattering in the ISM"	2022
Invited seminar at the Theoretical Astrophysics Including Relativity and Cosmology Institute, Caltech	

<p>“Wave optics in astrophysical lensing: unlocking the potential of the coherent sky” Invited seminar at the Mullard Space Science Laboratory</p>	<p>2022</p>
<p>“Wave optics in astrophysical lensing: unlocking the potential of the coherent sky” Invited seminar at the Berkeley Centre for Cosmological Physics</p>	<p>2022</p>
<p>“Wave optics in astrophysical lensing: unlocking the potential of the coherent sky” Brown Bag Lunch Talk at MIT</p>	<p>2022</p>
<p>“Wave optics in astrophysical lensing: unlocking the potential of the coherent sky” Stanford Tea Talk</p>	<p>2022</p>
<p>“Regimes in astrophysical lensing: refractive optics, diffractive optics, and the Fresnel scale” 2022 Scintillometry Conference at the Canadian Institute for Theoretical Astrophysics</p>	<p>2022</p>
<p>“Imaginary images and Stokes phenomena in the weak lensing of coherent sources” Invited talk for the radio astronomy group at Caltech</p>	<p>2021</p>
<p>“Wave Optics in Gravitational Lensing” 2019 Scintillometry Conference at the Max Planck Institute for Radio Astronomy</p>	<p>2019</p>

Publications

Published

Dylan L. Jow, Ue-Li Pen, Job Feldbrugge, Regimes in astrophysical lensing: refractive optics, diffractive optics, and the Fresnel scale, *MNRAS*, <https://doi.org/10.1093/mnras/stad2332>. August 2023.

F.X. Lin, R.A. Main, **Dylan L. Jow**, D.Z. Li, U.L. Pen, M.H. Van Kerkwijk, Plasma lensing near the eclipses of the Black Widow pulsar B1957+20, *MNRAS*, <https://doi.org/10.1093/mnras/stac3456>. Volume 519, Issue 1, February 2023, Pages 121-135

Dylan L. Jow, Ue-Li Pen, Measuring lens dimensionality in extreme scattering events through wave optics, *MNRAS*, <https://doi.org/10.1093/mnras/stac1652>. Volume 514, Issue 3, August 2022, Pages 4069-4077.

Dylan L. Jow, Fang Xi Lin, Emily Tyhurst, Ue-Li Pen, Imaginary images and Stokes phenomena in the weak plasma lensing of coherent sources, *MNRAS*, <https://doi.org/10.1093/mnras/stab2337>. Volume 507, Issue 4, November 2021, Pages 5390-5402.

Dylan L. Jow, Simon Foreman, Ue-Li Pen, Wei Zhu, Wave effects in the microlensing of pulsars and FRBs by point masses, *MNRAS*, <https://doi.org/10.1093/mnras/staa2230>. Volume 497, Issue 4, October 2020, Pages 4956-4969.

Dylan L. Jow, Douglas Scott, Re-evaluating evidence for Hawking points in the CMB, *JCAP*, doi: 10.1088/1475-7516/2020/03/021. Volume 2020, March 2020.

Dylan L. Jow, Dagoberto Contreras, Douglas Scott, Emory F. Bunn, Taller in the saddle: constraining CMB physics using saddle points, *JCAP*, doi: 10.1088/1475-7516/2019/03/031. Volume 2019, March 2019.

Dylan L. Jow, Ryley Hill, Douglas Scott, J.D. Soler, P.G. Martin, M.J. Devlin, L.M. Fissel, F. Poidevin; An application of an optimal statistic for characterising relative orientations, *MNRAS*, <https://doi.org/10.1093/mnras/stx2736>. Volume 474, Issue 1, February 2018, Pages 1018-1027.

Pre-print

Job Feldbrugge, **Dylan L. Jow**, Ue-Li Pen, Crossing singularities in the saddle point approximation, *arxiv*, <https://arxiv.org/abs/2309.12427>. September 2023.

Job Feldbrugge, **Dylan L. Jow**, Ue-Li Pen, Complex classical paths in quantum reflections and tunneling, *arxiv*, <https://arxiv.org/abs/2309.12420>. September 2023.

Dylan L. Jow, Xiaohan Wu, Ue-Li Pen, Refractive lensing of scintillating FRBs by sub-parsec cloudlets in the multi-phase CGM, *arxiv*, <https://arxiv.org/abs/2309.07256>. September 2023.

Anna Tsai, **Dylan L. Jow**, Daniel Baker, Ue-Li Pen, Scintillated microlensing: measuring cosmic distances with fast radio bursts, *arxiv*, <https://arxiv.org/abs/2308.10830>. August 2023.

Calvin Leung, **Dylan L. Jow**, Prasenjit Saha, Liang Dai, Masamune Oguri, L.V.E. Koopmans, Wave Mechanics, Interference, and Decoherence in Strong Gravitational Lensing, *arxiv*, <https://arxiv.org/abs/2304.01202>. April 2023.

Dylan L. Jow, Ue-Li Pen, Daniel Baker, On the cusp of cusps: a universal model for extreme scattering events in the ISM, *arxiv*, <https://arxiv.org/abs/2301.08344>. January 2023. 10 pages, 10 figures