

Alexander Laroche

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Education

University of Toronto <i>PhD in Astronomy & Astrophysics</i>	Toronto, ON, Canada 2022 –
McGill University <i>BSc in Honours Physics (First Class Honours)</i> Supervisors: Jo Bovy, Daniel Gilman, Adrian Liu, Jonathan Sievers	Montreal, QC, Canada 2018 – 2022

Awards & Fellowships

at University of Toronto.....	
Graduate Entrance Scholarship <i>5,000 CAD, David A. Dunlap Department of Astronomy & Astrophysics</i>	Sep 2022 – Aug 2023
NSERC USRA Fellowship <i>9,600 CAD, Natural Sciences & Engineering Research Council</i>	May 2021 – Aug 2021
at McGill University.....	
Canada 150 Research Chair Undergraduate Research Grant <i>6,000 CAD, Canada 150 Research Chairs Program</i>	May 2020 – Aug 2020
Charles River Laboratories Scholarship <i>2,000 CAD, Academic merit</i>	Sep 2020 – Aug 2021
Wing Hing Chan Scholarship in Science <i>500 CAD, Academic merit</i>	Sep 2020 – Aug 2021
Dean's Honours List <i>Top 10% of Faculty of Science</i>	Sep 2020 – Aug 2021

Publications

- Peer-Reviewed Journal Articles.....
1. **A. Laroche**, D. Gilman, X. Li, J. Bovy (2022). "Quantum fluctuations masquerade as halos: Bounds on ultra-light dark matter from quadruply-imaged quasars". Submitted to Mon. Not. Roy. Astron. Soc., arXiv:2206.11269.
- Theses.....
1. **A. Laroche**, J. Banghal (2021). "Quantifying Density-Ionization Correlations with the 21cm Power Spectrum While Including X-ray Heating Effects". McGill University. BSc Honours Research Thesis.

Research Experience

Undergraduate Research Assistant - UofT Galactic Astrophysics Group <i>Department of Astronomy & Astrophysics</i> Supervisors: Jo Bovy, Daniel Gilman	2021-2022 <i>University of Toronto</i>
○ Constraining ultra-light dark matter with strong gravitational lensing	
Undergraduate Research Assistant - McGill Cosmic Dawn Group <i>Department of Physics</i> Supervisor: Adrian Liu	2020-2021 <i>McGill University</i>

- Investigating the effect of x-ray heating on density-ionization correlations during the Epoch of Reionization with the 21cm power spectrum
- Undergraduate Research Assistant - McGill Radio Lab** **2020-2021**
Department of Physics *McGill University*
 Supervisor: Jonathan Sievers
- Data selection and analysis for the Probing Radio Intensity at high-Z from Mario (PRIZM) experiment

Teaching Experience

- AST101: The Sun and Its Neighbours** **Fall 2022**
Graduate teaching assistant, University of Toronto
- PAPER Tutor** **2019-2020**
Undergraduate math and physics tutor, Montreal, QC

Presentations

- Conferences.....
- Canadian Astro-Particle Physics Summer Student Talk Competition** **Aug 2022**
Quantum fluctuations masquerade as halos *Subdury, ON*
- University of Toronto 2022 Stellar Stats Workshop** **May 2022**
Constraining ultra-light dark matter by forward modeling flux ratios *Toronto, ON*
- Other Talks.....
- McGill University Undergraduate Research Project Presentation** **Dec 2021**
Probing the quantum mechanics of ultra-light dark matter with strong lensing *Montreal, QC*
- University of Toronto NSERC USRA Poster Seminar** **Aug 2021**
Probing the quantum mechanics of ultra-light dark matter with strong lensing *Toronto, ON*
- McGill University Undergraduate Research Thesis Presentation** **Apr 2021**
Density-ionization correlations with the 21cm power spectrum including X-ray heating *Montreal, QC*