



Connor J. Stone PhD

ASTROPHYSICIST · FATHER · SCIENCE COMMUNICATOR

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"I do Astrostatistics and software development for supernovae, astronomical images, and gravitational lensing"

Current Positions

Postdoctoral Fellow University of Toronto, Dunlap Institute (Sept. 2025 - Exp. Aug. 2028)
Rubin Fellow Rubin Observatory, via University of Toronto (Sept. 2025 - Exp. Aug. 2028)

Previous Positions

Postdoctoral Fellow Université de Montréal (Sept. 2022 - Exp. Aug. 2025)
Joint Postdoctoral Fellow Mila (Sept. 2022 - Exp. Aug. 2025)
CITA National Fellow Canadian Institute for Theoretical Astrophysics (Sept. 2022 - Exp. Aug. 2025)
NSERC Postdoctoral Fellow Natural Sciences and Engineering Research Council of Canada (Nov. 2022 - Exp. Aug. 2024)
Queen's Observatory Coordinator Queen's University (June. 2018 - Apr. 2022)

Education

Queen's University (Department of Physics, Engineering Physics & Astronomy)

Ph.D. Astrophysics

- **Topic:** Deciphering the Complexity of Galaxy Structure: New Catalogs, Deep Photometry, and Intrinsic Scatter
- **Advisor:** Professor Stéphane Courteau

Kingston, Ontario

May. 2018 - Aug. 2022

Queen's University (Department of Physics, Engineering Physics & Astronomy)

M.Sc. Physics

- **Topic:** From Surface Events in DEAP-3600 to the Radial Acceleration Relation in Spiral Galaxies
- **Advisors:** Professor Anthony Noble and Professor Stéphane Courteau

Kingston, Ontario

May. 2016 - Aug. 2018

University of Waterloo (Department of Physics & Astronomy)

B.Sc. Physics

- Co-operative program
- Dean's Honours List

Waterloo, Ontario

Sept. 2011 - Apr. 2016

Publications

COMPLETE RECORDS

First author publications

<https://ui.adsabs.harvard.edu/public-libraries/855ilJitQxKOS5q1XQhI7g>

NASA ADS

All authored publications

<https://ui.adsabs.harvard.edu/public-libraries/VX2TrCdNQ42VR0Y6xpu6kQ>

NASA ADS

HIGHLIGHTED CONTRIBUTIONS

[5] Caustics: A Python Package for Accelerated Strong Gravitational Lensing Simulations

Connor Stone; Alexandre Adam; Adam Coogan; M. J. Yantovski-Barth; Andreas Filipp; Landung Setiawan; Cordero Core; Ronan Legin; Charles Wilson; Gabriel Missael Barco; Yashar Hezaveh; Laurence Perrault-Levasseur.

JOSS (sub.)

June 2024

[4] Echoes in the Noise: Posterior Samples of Faint Galaxy Surface Brightness Profiles with Score-Based Likelihoods and Priors

Alexandre Adam; Connor Stone; Connor Bottrell; Ronan Legin; Yashar Hezaveh; Laurence Perrault-Levasseur.

AJ (sub.)

Nov. 2023

[3] AstroPhot: Fitting Everything Everywhere All at Once in Astronomical Images Connor Stone; Stéphane Courteau; Jean-Charles Cuillandre; Yashar Hezaveh; Laurence Perrault-Levasseur; Nikhil Arora.	MNRAS Aug. 2023
[2] Realistic galaxy image simulation via score-based generative models Michael J. Smith; James Geach; Ryan Jackson; Nikhil Arora; Connor Stone; Stéphane Courteau. MNRAS 511: 1808-1818	MNRAS Jan. 2022
[1] The Intrinsic Scatter of Galaxy Scaling Relations Connor Stone; Stéphane Courteau; Nikhil Arora. ApJ 912: 41	ApJ May 2021

Grants, Scholarships, & Awards

NOVA FRQNT-NSERC Amount: \$210,000 over 3 years; Competitive, jointly awarded with Co-Is at 3 other institutions	FRQNT and NSERC Mar. 2023 - Feb. 2026
NSERC Postdoctoral Fellowship Amount: \$90,000 over 2 years; Competitive	Natural Sciences and Engineering Research Council of Canada Nov. 2022 - Aug. 2024
CITA National Fellowship Amount: \$105,000 over 3 years; Competitive	Canadian Institute for Theoretical Astrophysics Sept. 2022 - Aug. 2025
The Walter C. Sumner Memorial Fellowship Amount: \$8,000; Competitive	Walter C Sumner Foundation Sept. 2021 - Apr. 2022
Natural Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Scholarship – Doctoral (PGS-D) Amount: \$63,000 over 3 years; Competitive	Government of Canada Sept. 2019 - Aug. 2022
Arthur B. McDonald Prize for Academic Excellence Amount: \$30,000; Competitive	McDonald Institute Sept. 2018 - Aug. 2019
Ontario Graduate Scholarship Amount: \$30,000 over 2 years; Competitive	Province of Ontario Sept. 2016 - Aug. 2018
Graduate Entrance Tuition Award Amount: \$6,414; Grade Based	Queen's University May 2016
Queen Elizabeth II Aiming for the Top Scholarship Amount: \$14,000 over 5 years; Grade Based	Province of Ontario Sept. 2011 - Apr. 2016
President's Scholarship Amount: \$2,000; Grade Based	University of Waterloo Sept. 2011
Physics Alumni Award Amount: \$1,000; Grade Based	University of Waterloo Sept. 2011

Teaching & Supervision

SUPERVISING

Sacha Perry-Fagant Project: Posterior sampling of Star Formation Histories in Galaxies.	PhD Sept. 2023 - Present
Raj Patel Project: The Universal Rotation Curve of Disk Galaxies.	MSc Sept. 2021 - Nov. 2023
Brianna Nix Project: studying the halos of Virgo Cluster galaxies.	Undergraduate Sept. 2021 - Apr. 2022
Jacob Meadus Project: studied SED fits on reduced flux measurement data for PROBES galaxies.	Undergraduate Sept. 2020 - Apr. 2021
Katherine Fraser Project: studied PROBES galaxies with complex morphologies, extraction of WISE photometry.	Undergraduate May 2020 - Aug. 2020

Maggie Oxford

Project: studied scaling relations in super-massive black hole hosts.

Undergraduate

May 2020 - Aug. 2020

Kelsey Eakin

Project: studied inner rotation curve slopes versus photometric properties of PROBES galaxies.

Undergraduate

May 2019 – Apr. 2020

Presentations

Oct. 2025	Two sample tests and Bayesian PSFs , Team talk	University of Toronto
Oct. 2025	CanDIAPL workshop: Rubin Supernova Dark Energy Science , Workshop talk	University of Waterloo
Sept. 2025	AstroPhot: Fitting Every Supernova Everywhere All at Once , Collaboration talk	LSST DESC
July 2025	AstroPhot: Fitting Everything Everywhere All at Once in Astronomical Images , Workshop talk	University of Manitoba
July 2025	Caustics: a differentiable, GPU accelerated, gravitational lensing simulator , Workshop talk	Tucson, AZ
June 2025	CASCADE: making scientific simulators and pipelines easy , Conference talk	St. Mary's University
May 2025	World Coordinate Systems in Astronomy , Workshop talk	Ciela Institute
May 2025	Pixel level Bayesian analysis of PSFs and Strong Gravitational Lenses , Conference talk	Paris
May 2025	CASCADE: building scientific simulators, solving the args problem , Collaboration talk	LSST DESC
May 2025	Pushing the limits of Bayesian analysis for gravitational lensing , Invited talk	American Museum of Natural History
Sept. 2024	Easy A: Getting a Perfect Score in Astronomical Image Processing , Invited talk	Queen's University
Aug. 2024	Ready Player One: Getting a Good Score in Observational Astronomy , Invited talk	Universe TBD
Aug. 2024	Caustics: a differentiable, GPU accelerated, gravitational lensing simulator , Conference talk	South Africa
Aug. 2024	Linear Regression: a Machine Learning Perspective , Invited Lecture	Kingston, Ontario
July 2024	Understanding Bayesian Statistics with the On/Off Problem , Invited Lecture	Kingston, Ontario
July 2024	Development of AstroPhot and Caustics: Fitting Everything Everywhere all at Once , Conference talk	Tacoma, USA
June 2024	Bayesian Statistics and Linear Regression: a Machine Learning Perspective , CRAQ summer school Lecture	Montréal, Québec
June 2024	Caustics: the gravitational lensing simulator of the future , Conference talk	Toronto, Ontario
May 2024	Caustics: A Differentiable, GPU Accelerated, Gravitational Lensing Simulator , Conference talk	Rome, Italy
March 2024	Caustics: The gravitational lensing simulator of the future , Contributed tutorial session	Oxford, UK
Jan. 2024	Caustics: The gravitational lensing simulator of the future , Poster	New Orleans, USA
Oct. 2023	AstroPhot: Fitting Everything Everywhere All at Once in Astronomical Images , Conference talk	Banff, Alberta
Aug. 2023	AstroPhot: Fitting Everything Everywhere All at Once in Astronomical Images , Seminar	Waterloo, Ontario
April 2023	Ready Player One: Getting a Good Score in Observational Astronomy , CITA Seminar	Toronto, Ontario
May 2023	Surveys 2 Discoveries , tutorial session	Montréal, Quebec
Jan 2023	Timescales in Astrophysics , Conference talk	United Arab Emirates
May 2022	Canadian Astronomy in the Roaring 2020's: CASCA 2022 , Poster and flash talk	Virtual
2017-2021	Queen's university, Department of Physics, Engineering Physics & Astronomy , Twice yearly Journals Club	Kingston, Ontario
May 2021	Canadian Astronomical Society, Société Canadienne Astronomie 2021 , Poster and flash talk	Virtual
July 2020	Arthur B. McDonald Institute, Tools from the Couch , Seminar	Virtual
June 2020	Arthur B. McDonald Institute, Tools from the Couch , Seminar	Virtual
Aug 2019	Santa Cruz Workshop on Galaxy Formation , Poster and flash talk	Santa Cruz, CA
July 2018	The Physics of Galaxy Scaling Relations and the Nature of Dark Matter , Poster and flash talk	Kingston, Ontario
May 2017	The Canadian Association of Physicists Congress , Talk	Kingston, Ontario
June 2015	The Canadian Association of Physicists Congress , Poster	Edmonton, Alberta

Public Outreach

PRESS/MEDIA APPEARANCES

Jan. 2021 Grad Chat Podcast , Queen's School of Graduate Studies	Kingston
Dec. 2020 Celestial Occurrences in December 2020 , Global News	Kingston
Sept. 2020 PhD candidate Connor Stone explains the discovery of phosphine in the clouds of Venus , Discovery Canada	Virtual
July 2020 Comet remains to be seen for the month of July , Whig Standard	Kingston
June 2020 Queen's University astrophysicist sheds some light on the historic SpaceX launch , Global News	Kingston
June 2020 First Crewed SpaceX Launch , CFRC	Kingston
Apr. 2020 Spotting Comet ATLAS C/2019 Y4 , YourTV Kingston	Kingston
Nov. 2019 Mercury moves across the sun , Global News	Kingston
July 2019 Canada's contributions to the Apollo 11 mission , Global News	Kingston
June 2019 A Nobel Pursuit , The Queen's Gazette	Kingston
Dec. 2018 Queen's Phd student tells us how we can spot the International space station in the sky , Global News	Kingston

PUBLIC TALKS

March 2023 Mysterious Galaxies at the Beginning of Time , Queen's Observatory	Kingston
May 2022 Virtual Planetarium Keynote , Science Rendezvous Kingston	Virtual
May 2021 Virtual Planetarium Keynote , Science Rendezvous Kingston	Virtual
June 2019 Where Does it All Come From? , Queen's Observatory	Kingston
May 2019 Young Persons Lecture Competition (Honourable Mention) , Institute of Materials, Minerals, & Mining	Kingston
Oct. 2018 Grad Student Panel Discussion: Get the Real Deal , School of Graduate Studies	Kingston
Oct. 2018 Tools for Machine Learning , Queen's Machine Intelligence and Neuroevolution Design (Q-MIND)	Kingston
Feb. 2018 What is Dark Matter? , Queen's Observatory	Kingston

Service

Ciela Institute Professional Development Series	Université de Montréal
Tutorials on professional applications of tools like Blender, GIMP, Audacity, etc.	July 2023 - Aug. 2025
Ciela Institute Astromatic Hackathon	Université de Montréal
Lecture, plus LOC responsibilities for the week long hackathon	August 2023
UNIONS data working group meeting	Université de Montréal
LOC and primary event coordinator	May 2023
Surveys 2 Discoveries conference	Université de Montréal
Member of the LOC. Organizing payment system, booking logistics, forms and attendee data.	May 2023
UdeM Astronomy Department Seminar Committee	Université de Montréal
Organizing and coordinating seminar program including inviting international speakers to the department.	Sept. 2022 - Aug. 2025
Equity, Diversity, and Inclusion Committee	Ciela Institute
Organizing and coordinating EDI activities in the Institute including the development of the code of conduct.	Sept. 2022 - Aug. 2025
Journal Referee	ApJL, ApJ, JOSS, ICML, CanTAC
The ApJL, ApJ, JOSS, ICML, and CanTAC	2021 - Present
Physics Department Outreach Committee	Queen's University
Organizing and coordinating outreach activities in the Physics department.	Sept. 2021 - Aug. 2022
Q-GraPh Graduate Physics Journals Club	Queen's University
Creator/Organizer. Year-round weekly Journals Club. Organized over 170 talks.	May 2017 - Apr. 2022
Data Science Discussion Group	Queen's University
Co-Creator/Organizer. Year-round monthly discussions on Machine learning and Data Science	Sept. 2017 - Sept. 2019
The Physics of Galaxy Scaling Relations and the Nature of Dark Matter	Queen's University
Member of the LOC, involved in various elements of conference organization and operations.	July 2018