

Steffani Grondin

PHD CANDIDATE – UNIVERSITY OF TORONTO

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Education

University of Toronto

Toronto, ON, Canada

PHD IN ASTRONOMY & ASTROPHYSICS

2020-2025

Advisors: Prof. Maria Drout and Prof. Jeremy Webb

Title: One (or Two) in a Million: Using Extra-Tidal Stars and Post-Common Envelope Binaries of Star Clusters to Probe Cluster Dynamics and Binary Evolution

University of British Columbia

Vancouver, BC, Canada

BSc IN PHYSICS & ASTRONOMY (W/ DISTINCTION)

2015-2020

Advisor: Prof. Harvey Richer

Title: White Dwarf Natal Kicks in Open Star Clusters

Awards

SCHOLARSHIPS/FELLOWSHIPS (TOTAL FUNDING: \$148,050 CAD).....

PhD	NSERC Postgraduate Scholarship - Doctoral (PGS-D) , \$101,000 over 3 years	2023-2026
PhD	Walter C. Sumner Memorial Fellowship , \$14,050 over 2 years	2023-2025
PhD	Ontario Graduate Scholarship (OGS) , \$15,000	2022-2023
BSc	Dunlap Institute Summer Undergraduate Research Program Fellowship , \$9,500	2019
BSc	NSERC Undergraduate Student Research Award (USRA) , \$8,500	2018

ACADEMIC/RESEARCH/LEADERSHIP AWARDS.....

BSc	2025 Frontiers of Science Award (for Kramer et al. 2021) , ICBS, \$25,000 USD	2025
PhD	School of Graduate Studies Conference Grant , \$850, \$750	2024, 2025
PhD	“You Lead, We Follow” Leadership Award , UofT Dept. of Astronomy and Astrophysics	2024
PhD	IAU Travel Grant , €650	2024
BSc	Top 10 Finalist , Undergraduate 3 Minute Thesis	2020
BSc	Top Research Poster , UofT SURP Research Poster Symposium	2019
BSc	Second Place Research Poster , Physics Summer Research Poster Competition	2018

Publication List

SIGNIFICANT CONTRIBUTION (4).....

1. Evans, F., **Grondin, S.**, Ye, C., Webb, J.J., Laroche, A. & Bovy, J., “The ejection and detectability of high- and hyper-velocity stars by compact object binaries in globular clusters”, 2025, in review at *ApJ*.
2. **Grondin, S.**, Drout, M.R., Nordhaus, J., Muirhead, P., Speagle, J.S. & Chornock, R., “The first catalog of candidate white dwarf + main sequence binaries in open clusters: A new window into common envelope evolution”, 2024, *ApJ*, 976, 1.
Press Release/Media: [University of Toronto](#), [Universe Today](#)
3. **Grondin, S.**, Webb, J.J., Lane, J.M.M., Speagle, J.S. & Leigh, N., “A catalogue of Galactic GEMS: Globular cluster Extra-tidal Mock Stars”, 2024, *MNRAS*, 528, 3.
4. **Grondin, S.**, Webb, J.J., Leigh, N., Speagle, J.S. & Khalifeh, R., “Searching for the extra-tidal stars of globular clusters with high-dimensional analysis and a core particle-spray code”, 2023, *MNRAS*, 518, 3.

OTHER CONTRIBUTIONS (4).....

1. Herrera-Urqueta, A. et al. (12 co-authors including **Grondin, S.**), “A systematic method to identify runaways from star clusters produced from single-binary interactions: A case study of M67”, 2025, *A&A*, 697, A183.

2. Leigh, N., Ye, C., **Grondin, S.**, Fragione, G., Webb, J.J. & Heinke, C., “The dominant mechanism(s) for populating the outskirts of star clusters with neutron star binaries”, 2023, *MNRAS*, 527, 3.
3. Kramer, M. et al. (29 co-authors including **Grondin, S.**), “Strong Field Gravity Tests with the Double Pulsar”, 2021, *Physical Review X*, 11, 4. Press Release/Media: [University of British Columbia](#), [American Physical Society](#), [Universe Today](#)
4. Richer, H. et al. (8 co-authors including **Grondin, S.**), “Massive White Dwarfs in Young Star Clusters”, 2021, *ApJ*, 912, 165.

Observing Programs

Facilities/Surveys: 2MASS, APOGEE, Gaia, Kepler/K2, Pan-STARRS1, TESS, Zwicky Transient Facility

SUCCESSFUL OBSERVING TIME.....

Gemini GMOS	Gemini Observatories , 90 hours (PI) + 14 hours (Co-I)	2021-2025
Swift UVOT	Neil Gehrels Swift Observatory , 2000 seconds (PI)	2024

OBSERVING EXPERIENCE.....

Magellan MagE	Las Campanas Observatory , 10 nights (in-person and remote observations)	2021-2025
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Selected Academic Presentations

INVITED TALKS/SEMINARS (8).....

South Bend, US	Astrophysics Department Seminar , University of Notre Dame	Apr. 2025
San Diego, US	STRAND (Simulations TheoRy AND more) Seminar , UC San Diego	March 2025
Waterloo, CA	Astrophysics Department Seminar , Waterloo Centre for Astrophysics	Feb. 2025
Pasadena, US	Caltech Tea Talks , California Institute of Technology	Dec. 2024
Amsterdam, NL	Multi-Star Group Meeting , University of Amsterdam	July 2024
Vienna, AT	Institute Seminar , Institute of Science and Technology Austria	July 2024
Paris, FR	Joint Galaxies and Cosmology Seminar , L'Observatoire de Paris [virtual]	Dec. 2023
Toronto, CA	Department Lunch Seminar , University of Toronto	Nov. 2022

CONTRIBUTED TALKS (14).....

Seoul, KR	IAUS 398/MODEST-25: Compact Objects and Binaries in Dense Stellar Systems , IAU	June 2025
Anchorage, US	AAS 246th Meeting , AAS	June 2025
Pasadena, US	Carnegie Tea , Carnegie Observatories	Dec. 2024
Paraty, BR	IAUS 395: Stellar Populations in the Milky Way and Beyond , IAU	Nov. 2024
Warsaw, PL	MODEST-24: Exploring Dense Stellar Systems Across Cosmic Time , CAMK	Aug. 2024
Barcelona, ES	EuroWD24 , Universitat Politècnica de Catalunya	July 2024
Toronto, CA	CASCA 2024 , University of Toronto	June 2024
Toronto, CA	Globular Clusters and Their Tidal Tails , University of Toronto	May 2024
Garching, DE	The Interplay Between Binaries and Star Clusters , ESO Garching	Sept. 2023
Evanston, US	MODEST-23: Star Clusters in the Post-Pandemic Era , Northwestern University	Aug. 2023
Ann Arbor, US	Great Lakes Star Clusters & Streams , University of Michigan	Aug. 2023
Hamilton, CA	Star Clusters at McMaster , McMaster University	Aug. 2022
Busan, KR	IAU General Assembly XXXI (Machine Learning in Astronomy Session) , IAU	Aug. 2022
Toronto, CA	CASCA 2022 , York University [virtual]	May 2022

INSTRUCTED TUTORIALS AND WORKSHOPS (2).....

Garching, DE	‘Machine Learning Techniques for Star Cluster Science’ , 75+ participants	Sept. 2023
Ann Arbor, US	‘Dimensionality Reduction: Applications to Star Clusters’ , 50+ participants	Aug. 2023

Advising Experience

5 undergraduate students supervised with: Jeremy Webb (*), Joshua Speagle (†) and Alison Sills (°)

BSc	Max Zabrodski ^{†,°} , Literature review: Multiple stellar populations in globular clusters	2023-2024
BSc	Rosalind Liang ^{*,†} , Project: Optimizing chemical abundances for extra-tidal star searches	2022-2023
BSc	Khemaka Oo ^{*,†} , Project: Comparing performances of dimensionality reduction algorithms	2022-2023
BSc	Ryan Wang ^{*,†} , Project: Automating a search for extra-tidal stars of globular clusters	2022-2023
BSc	Eric Connena ^{*,†} , Project: A high-order dimensional analysis of APOGEE DR16 using UMAP	2021-2022

Teaching Experience _____

I have **instructed 2500+ undergraduate students in 16 university classes** as a teaching assistant from 2018- 2024. From 2021-2024, I was the **Head Teaching Assistant for the two largest undergraduate courses in Canada** (AST 101/201). In this role, I led a team of 20 graduate instructors and developed weekly tutorial curricula for thousands of non-science students.

UofT	AST 201: Stars and Galaxies , Head Tutorial TA (x3), Graduate TA (x2)	2021-2025
UofT	AST 101: The Sun and Its Neighbours , Head Tutorial TA (x3), Graduate TA (x5)	2020-2024
UBC	PHYS 109: Enriched Experimental Physics Lab , Undergraduate TA	2020
UBC	PHYS 101: Energy and Waves Lab , Undergraduate TA	2019
UBC	PHYS 119: Experimental Physics Lab , Undergraduate TA	2018

Service and Academic Leadership _____

CONFERENCE ORGANIZATION.....

Co-Organizer	June 2024
CASCA 2024: HARVEY RICHER MEMORIAL SESSION	Toronto, CA
Local Organizing Committee Co-Chair	May 2024
GLOBULAR CLUSTERS AND THEIR TIDAL TAILS	Toronto, CA

LEADERSHIP POSITIONS/COMMITTEES.....

Co-President	2023-2024
UOFT GRADUATE ASTRONOMY STUDENT ASSOCIATION (GASA)	UofT
• Led and advocated for 50+ UofT astronomy graduate students, overseeing financial, social, and mentorship initiatives.	
Education and Public Outreach Committee & Grad Student Representative	2021-2023
CANADIAN ASTRONOMICAL SOCIETY (CASCA)	UofT
• Acted as a liason between the CASCA graduate student committee and the UofT GASA.	
Secretary	2018-2019
UBC PHYSICS SOCIETY	UBC
• Organized academic and social events for physics undergraduate students.	
Co-President	2017-2018
UBC ASTRONOMY CLUB	UBC
• Led a 30+person council to expand public engagement in astronomy throughout British Columbia.	

Outreach and Science Communication _____

Astronomy/STEM Educator	2021-2024
BRITISH COLUMBIA SCHOOL DISTRICT NO. 27 & NO. 36	UofT
• Visited primary and secondary schools to run astronomy and women in STEM lessons.	
Volunteer & Roaming Astronomer	2023
ASTRONOMY ON TAP T.O.	UofT
• Assisted in event organization and answered public questions at Toronto's largest astronomy event.	
Speaker & Volunteer Coordinator	2022-2023
UOFT ASTROTours	UofT
• Coordinated 20+ monthly volunteers and gave talks for a 100+ person astronomy public talk series.	
Science Writer	2021
UP AND ATOM YOUTUBE CHANNEL	YouTube
• Created popular-science video scripts that explain astronomy concepts for a YouTube channel with 350K+ subscribers.	
Science Communications Assistant	2018
TRIUMF (CANADA'S PARTICLE ACCELERATOR CENTRE)	Vancouver, CA
• Synthesized complex science into engaging communications pieces (e.g. web articles, public tours and social media).	
STEM Instructor	2017
UBC GEERING UP ENGINEERING OUTREACH	Vancouver, CA
• Educated 1000+ K-12 aged children across British Columbia about STEM in both a classroom and summer camp environment.	