

# Anna O'Grady

POSTDOCTORAL FELLOW – CARNEGIE MELLON UNIVERSITY

Wean Hall, 5000 Forbes Avenue, Pittsburgh, PA, 15213, USA

Phone Number: 1-412-626-9574

[✉ aogrady@andrew.cmu.edu](mailto:aogrady@andrew.cmu.edu) | [🏠 annaog.github.io](https://github.com/annaog) | [📄 orcid.org/0000-0002-7296-6547](https://orcid.org/0000-0002-7296-6547)

## Research Skills and Interests

---

**Topics:** Observational Stellar Astronomy, Binary Massive Star Evolution, Resolved Stellar Populations, Variable Stars, Core Collapse Supernovae Progenitors, UVOIR Spectroscopy

**Telescopes:** Hubble Space Telescope, Chandra X-ray Observatory, Magellan Telescopes (LCO), Gemini, South African Large Telescope

**Software:** COSMIC, DRAGONS, IRAF, AstroPy, Git

## Research Positions

---

### Postdoctoral Fellow

McWILLIAMS CENTER POSTDOCTORAL FELLOWSHIP

Carnegie Mellon University

Sept. 2023 - Present

### PhD Student

ADVISORS: PROF. MARIA DROUT, PROF. BRYAN GAENSLER, AND PROF RENÉE HLÔZEK

University of Toronto

Sept. 2016 - Aug. 2023

### Undergraduate Student and NSERC Research Award

ADVISORS: PROF. IVAN BOOTH AND PROF. HARI KUNDURI

Memorial University of NL

Sept. 2012 - June 2016

### Dorrit Hoffleit Undergraduate Summer Research Award

ADVISOR: PROF. LOUISE EDWARDS

Yale University

May 2014 - July 2014

## Education

---

### University of Toronto

PHD IN ASTRONOMY & ASTROPHYSICS

Advisors: Prof. Maria Drout and Prof. Bryan Gaelsner

Title: Identification of super-AGB stars and Yellow Supergiant Binaries in the Magellanic Clouds

Toronto, ON, Canada

2016-2023

### Memorial University of Newfoundland and Labrador

BSc HONOURS IN PHYSICS & APPLIED MATHEMATICS

Advisors: Prof. Ivan Booth and Prof. Hari Kunduri

Title: Perturbations of black hole horizons

St. John's, NL, Canada

2012-2016

## Advising Experience

---

**3 students** supervised or co-supervised(°).

PhD **Shannon Bowes**°, PhD Thesis: Variability of Yellow Supergiant Binaries

2025-Present

BSc **Mark Martinez**°, Project: SNe Progenitors of Binary Neutron Star Mergers in COSMIC

2024-Present

High Sch. **Esme Offner**, Science Fair: Radial Velocities of Nearby Stars

2024-2025

## Teaching Experience

---

As a postdoc, I have instructed 50+ undergraduate students as a **guest lecturer** for 4 lectures, one of which I **designed myself**. As a graduate student, I have been a teaching assistant (TA) for **over 2000 undergraduate students in 16 courses**. From 2018-2023, I was the **Head Marker** for two of the **largest undergraduate courses in Canada**. In this role I was responsible for organizing the duties of a team of 20+ TAs and overseeing the grading of all students. I also **designed and delivered** a lecture to summer research students. Finally, TA for a graduate course in 2022 and an undergraduate lab course during my senior undergraduate year.

CMU	<b>PHYS 33120: Science and Science Fiction</b> , Guest Lecturer (4 Lectures)	2025
UofT	<b>Summer Undergraduate Research Program</b> , Guest Lecturer (1 lecture)	2022
UofT	<b>AST 301: Observational Astronomy</b> , Graduate TA (x4)	2019-2022
UofT	<b>AST 1410: Stars (Graduate Course)</b> , Senior Graduate TA, Half semester appointment	2021-2025
UofT	<b>AST 101/201: The Sun &amp; Its Neighbours/Stars &amp; Galaxies</b> , Head Marker (x5.5), Grad. TA (x6)	2016-2023
MUNL	<b>PHYS 1020: Introductory Physics I</b> , Undergraduate TA	2015

## Awards & Grants

---

### SCHOLARSHIPS & FELLOWSHIPS

PhD	<b>GM Women in Science and Mathematics Award</b> , \$5000 CAD	2022
PhD	<b>Lachlan Gilchrist Fellowship</b> , \$12000 over 3 years	2018-2021
PhD	<b>Walter C. Sumner Memorial Fellowship</b> , \$16000 CAD over 2 years	2018-2020
PhD	<b>OGS-QEII Graduate Scholarship</b> , \$60000 CAD over 4 years	2016-2020
Undergrad	<b>NSERC USRA &amp; MUNL Internship Award</b> , \$12000 CAD for 2 summers	2015-2016
Undergrad	<b>Dr. S.W. Brekon Scholarship in Physics</b> , \$1000 CAD	2015
Undergrad	<b>Dorrit Hoffleit Summer Undergraduate Research Award</b> , \$3000 USD	2014

### ACADEMIC, RESEARCH, & LEADERSHIP AWARDS

PhD	<b>Jiu Lin Allen Yen Award for O'Grady et al. 2020</b> , \$1000 CAD	2021
PhD	<b>"You Lead, We Follow" Leadership Award</b> , UofT Dept. of Astronomy and Astrophysics	2021
Undergrad	<b>Memorial University Lou Visentin Award</b> , Achieved Dean's List in all years	2016
Undergrad	<b>Dr. Hugh J. Anderson Leadership Award</b> , Memorial University of NL	2013-2015

### GRANTS

Postdoc	<b>NSF Proposal - Near Field Population Synthesis</b> , Collaborator	2025
---------	--	------

## Publication List

---

Underlined authors indicate student supervision.

### INVITED REVIEWS (1)

1. **O'Grady, A.J.G.**, Moriya, T.J.; Renzo, M.; Vigna-Gomez, A., "[Thorne-Zytkow Objects](#)", 2024, *Reference Module in Materials Science and Materials Engineering*, Elsevier, published as a chapter in Elsevier's *Encyclopedia of Astrophysics* edited by I. Mandel, 17pp, 4 citations

### SIGNIFICANT CONTRIBUTION (5)

5. **O'Grady, A.J.G.**, O'Connor, B.; Goldberg, J.; et al., "[Betelgeuse's Buddy: X-Ray Constraints on the Nature of  \$\alpha\$  Ori B](#)", 2025, *ApJ* in press, arXiv:2505.18376, 15pp, 2 citations
4. Goldberg, J.; **O'Grady, A.J.G.**; et al., "[Betelgeuse, Betelgeuse, Betelgeuse, Betel-buddy? Constraints on the dynamical companion to  \$\alpha\$  Orionis from HST](#)", 2025, *ApJ* in press, arXiv:2505.18375, 15 pp, 3 citations
3. **O'Grady, A.J.G.**, Drout, M.R.; Neugent, K.F.; et al., "[Binary Yellow Supergiants in the Magellanic Clouds. I: Photometric Candidate Identification](#)", 2024, *ApJ*, 975, 29, 21pp, 6 citations
2. **O'Grady, A.J.G.**, Drout, M.R.; Gaensler, B.M.; et al., "[Cool, Luminous, and Highly Variable Stars in the Magellanic Clouds. II: Spectroscopic and Environmental Analysis of Thorne-Zytkow Object and super-AGB Star Candidates](#)", 2023, *ApJ*, 943, 18, 26pp, 12 citations
1. **O'Grady, A.J.G.**, Drout, M.R.; Shappee, B.J.; et al., "[Cool, Luminous, and Highly Variable Stars in the Magellanic Clouds from ASAS-SN: Implications for Thorne-Zytkow Objects and super-Asymptotic Giant Branch Stars](#)", 2020, *ApJ*, 901, 2, 32pp, 24 citations

### OTHER CONTRIBUTIONS (9)

9. Dorn-Wallenstein, T.Z.; et al. (7 co-authors, including **O'Grady, A.J.G.**), "[A Spectroscopic Hunt for Post-Red Supergiants in the Large Magellanic Cloud II: Turbulent Line Broadening in the Spectra of LMC Yellow Supergiants](#)", 2025, *ApJ* in press.
8. Patrick, L.R.; et al. (39 co-authors including **O'Grady, A.J.G.**), "[Binarity at Low Metallicity \(BLOeM\): The multiplicity properties and evolution of BAF-type supergiants](#)", 2025, accepted for publication in *A&A*.
7. Shenar, T.; et al. (77 co-authors including **O'Grady, A.J.G.**), "[Binarity at Low Metallicity \(BLOeM\): A spectroscopic VLT monitoring survey of massive stars in the SMC](#)", 2024, *A&A*, 690, A289

6. Drout, M.R.; et al. (7 co-authors including **O’Grady, A.J.G.**), “An observed population of intermediate-mass helium stars that have been stripped in binaries”, 2023, *Science*, 382, 6676 **Press Release/Media: University of Toronto, Carnegie Observatories**
5. Kilpatrick, C.D.; et al. (25 co-authors including **O’Grady, A.J.G.**), “Type II-P supernova progenitor star initial masses and SN 2020jfo: direct detection, light-curve properties, nebular spectroscopy, and local environment”, 2023, *MNRAS*, 524, 2
4. Aleo, P.D.; et al. (87 co-authors including **O’Grady, A.J.G.**), “The Young Supernova Experiment Data Release 1 (YSE DR1): Light Curves and Photometric Classification of 1975 Supernovae”, 2023, *ApJS*, 226, 1
3. Chan, H.-S.; et al. (6 co-authors including **O’Grady, A.J.G.**), “Searching for Anomalies in the ZTF Catalog of Periodic Variable Stars”, 2022, *ApJ*, 932, 2
2. Kessler, T.; et al. (30 co-authors including **O’Grady, A.J.G.**), “Models and Simulations for the Photometric LSST Astronomical Time Series Classification Challenge (PLAsTiCC)”, 2019, *PASP*, 131, 1003
1. Booth, I.; Kunduri, H.K.; **O’Grady, A.J.G.**, “Unstable marginally outer trapped surfaces in static spherically symmetric spacetimes”, 2017, *Physical Review D*, 96, 2

## Observing Programs

---

### SUCCESSFUL OBSERVING PROPOSALS

**[PI] X-ray detection of the low-mass companion responsible for Betelgeuse’s long secondary period**

Co-IS: O’CONNOR, B; GOLDBERG, J.; JOYCE, M.; MOLNAR, L.; JOHNSON, C.; HARE, J.; BREIVIK, K.; DROUT, M. (AWARDED: 45 KS)

*Chandra X-Ray Observatory*

*2024B, Cycle 26 DDT*

**[Co-I] Far-UV detection of the low-mass companion responsible for Betelgeuse’s long secondary period**

PI: GOLDBERG, J. (AWARDED: 4 ORBITS)

*Hubble Space Telescope*

*2024B, Cycle 31 DDT*

**[PI] Confirming YSG Binaries in the Magellanic Clouds: Towards a Population of Partially Stripped Supernovae Progenitors**

Co-IS: DROUT, M., (AWARDED: 6.3 HOURS)

*SALT*

*2024B*

**[PI] Confirming YSG Binaries in the Magellanic Clouds: Towards a Population of Partially Stripped Supernovae Progenitors**

Co-IS: DROUT, M.; BREIVIK, K.; GOTBERG, Y.; LUDWIG, B., (AWARDED: 22 HOURS)

*Gemini-S*

*2024B*

**[PI] Confirmation of YSG Binaries in the Magellanic Clouds: Towards a Population of Supernova Progenitor Analogs**

Co-IS: DROUT, M.; BREIVIK, K.; GOTBERG, Y.; LUDWIG, B., (AWARDED: 18 HOURS)

*Gemini-S*

*2022B*

**[Co-I] The Nature of a New Class of Luminous Highly Variable Stars**

PI: DROUT, M. (AWARDED: 1 NIGHT)

*Magellan/Baade 6.5m*

*2020A*

**[Co-I] An APOGEE-2S Survey of Evolved Massive Stars in the Magellanic Clouds**

PI: DROUT, M. (AWARDED: 4 NIGHTS)

*du Pont 2.5m*

*2019*

**[Co-I] Yellow Supergiants as Probes of Stellar Evolution and Mass Loss**

PI: DROUT, M. (AWARDED: 12 NIGHTS)

*Magellan/Clay 6.5m*

*2017B*

### OBSERVING EXPERIENCE

**Optical Echelle Spectrographs (MIKE, MagE)**

25 NIGHTS

*Magellan 6.5m, LCO*

**Optical Long-Slit Spectroscopy and Photometry (IMACS, LDSS)**

4 NIGHTS

*Magellan 6.5m, LCO*

**Optical Multi-Object Spectroscopy and Photometry (WFCCD)**

3 NIGHTS

*du Pont 2.5m, LCO*

## Academic Presentations

---

### INVITED TALKS & WORKSHOPS (15)

Hamilton, CA	<b>McMaster University</b> , Invited Colloquium	Oct. 2025
St. John's, CA	<b>Memorial University of Newfoundland and Labrador</b> , Invited Colloquium	Oct. 2025
London, CA	<b>University of Western Ontario</b> , Invited Colloquium	Sep. 2025
Montreal, CA	<b>McGill University, Trottier Space Institute</b> , Invited Colloquium	Sep. 2025
NYC, US	<b>Stable Mass Transfer 2.0 Workshop</b> , Center for Computational Astrophysics	May 2025
Sacramento, US	<b>Special Session on Thorne-Zytkow Objects</b> , Invited Talk, APS April Meeting	Apr. 2024
St. John's, CA	<b>Memorial University of Newfoundland and Labrador</b> , Invited Colloquium	Mar. 2024
Cambridge, US	<b>Harvard Center for Astrophysics</b> , Invited Seminar Talk	Nov. 2022
Toronto, CA	<b>University of Toronto</b> , Department Lunch Seminar	Oct. 2022
Virtual	<b>AAS 238</b> , Invited Talk, Special Session on Thorne-Zytkow Objects	June 2021
Virtual	<b>California Polytechnic State University</b> , Invited Colloquium	Apr. 2021
Virtual	<b>Univ. of Arizona, Univ. of Hawaii, Ohio State Univ.</b> , Invited paper discussion (3)	Oct. 2020
St. John's, CA	<b>Memorial University of Newfoundland and Labrador</b> , Invited Colloquium	Apr. 2019

#### CONTRIBUTED TALKS (8)

Halifax, CA	<b>CASCA AGM</b> , CASCA	Jun. 2025
Virtual	<b>Stripped Star Workshop</b> , Lorentz Center	July 2024
Leuven, BE	<b>Massive Triples, Binaries, and Mergers</b> , KU Leuven	July 2023
Seattle, US	<b>AAS Meeting, Dissertation Talk</b> , AAS 241	Jan. 2023
Toronto, CA	<b>Spoken-WERRD symposium</b> ,	Nov. 2022
Virtual	<b>Unsolved Problems in Giants and Red Supergiants</b> , IAU	June 2021
Toronto, CA	<b>astro-PH Paper Discussion</b> , UofT	Oct. 2020
Virtual	<b>CASCA AGM</b> , CASCA	June 2021

#### CONTRIBUTED POSTERS (6)

Virtual	<b>XMC II: Clouds over Yellowstone</b> , NOIRLab	May 2025
Virtual	<b>Transients From Space</b> , Space Telescope Science Institute	Apr. 2025
Ballyconnel, IR	<b>Massive Stars Near and Far</b> , IAU Symposium 361	May 2022
Virtual	<b>CASCA AGM</b> , CASCA	May 2020
Toronto, CA	<b>RASC and AAVSO Joint AGM</b> , York University	June 2019
Baltimore, US	<b>Deaths and Afterlives of Stars</b> , Space Telescope Science Institute	Apr. 2019

#### PUBLIC TALKS, PANELS, & EDUCATION WORK (17)

Pittsburgh, US	<b>Public Talk (2)</b> , Allegheny Observatory	Jul. 24, Apr. 25
St. John's, CA	<b>Public Talk (8)</b> , Royal Astronomical Society of Canada, St. John's Chapter	Dec. 2017-25
St. John's, CA	<b>Elizabeth R. Laird Lecture</b> , Johnson GeoCentre	Apr. 2024
Mt. Pearl, CA	<b>Public Talk</b> , Mount Pearl Girl Guides Association	Apr. 2024
Virtual	<b>Public Talk</b> , Amateur Observer's Society of New York	June 2022
Toronto, CA	<b>AstroTours Public Talk - Pride Month</b> , University of Toronto Graduate Astronomy Society	June 2022
St. John's, CA	<b>Presentation to Grade 5 and 6 Students</b> , St. Mary's Elementary School	Apr. 2022
Virtual	<b>Presentation to Grade 7-12 Students</b> , Crescent Collegiate, NL	Feb. 2021
Toronto, CA	<b>AstroTours Public Talk</b> , University of Toronto Graduate Astronomy Society	July 2019

## Collaborations and Professional Organizations

<b>BLOeM</b>	2024-Present
BINARITY AT LOW METALLICITY COLLABORATION	
<b>YSE</b>	2021-2023
YOUNG SUPERNOVA EXPERIMENT COLLABORATION	
<b>IAU</b>	2024-Present
INTERNATIONAL ASTRONOMY UNION	
<b>CASCA</b>	2019-Present
CANADIAN ASTRONOMICAL SOCIETY   SOCIÉTÉ CANADIENNE D'ASTRONOMIE	
<b>AAS</b>	2022-Present
AMERICAN ASTRONOMICAL SOCIETY	

## Service, Outreach, and Academic Leadership

---

### CONFERENCE ORGANIZATION

#### Atlantic Universities Physics and Astronomy Conference

Aug. 2015 - Feb. 2016

Co-ORGANIZER OF LOC (WITH TYLER DOWNEY)

St. John's, CA

- Co-organizer of LOC for regional conference of 100+ undergraduate students across Atlantic Canada
- Responsible for assembling the rest of the LOC and volunteering groups, overseeing conference design and budget, acquiring meeting space and catering, choosing invited speakers, soliciting donations, and ensuring the conference ran smoothly.

#### Atlantic Universities Physics and Astronomy Conference

HOST OF WOMEN IN SCIENCE PANEL

Feb. 2016  
St. John's, CA

- Invited and hosted four women scientists at hour-long a Women in Science panel.

### LEADERSHIP POSITIONS, COMMITTEES, AND SERVICE

#### Scholarships and Fellowship Review Panel, Physics & Astronomy

2024-2027

NATIONAL SCIENCE AND ENGINEERING RESEARCH COUNCIL OF CANADA

Canada

- Panel member for evaluating graduate scholarship and postdoctoral fellowship applications. 3 year appointment.

#### McWilliams Fellowship Search Committee

2024-2025

MCWILLIAMS CENTER FOR COSMOLOGY AND ASTROPHYSICS

CMU

- Committee member for evaluating postdoctoral fellowship applications.

#### 'Write Together Friends' Co-organizer

2024-Present

MCWILLIAMS CENTER FOR COSMOLOGY AND ASTROPHYSICS

CMU

- Co-creator and co-organizer of weekly department event to encourage interaction and co-working within the department.

#### Regular Member, Committee Member

2016-2023

GRADUATE ASTRONOMY STUDENT ASSOCIATION

UofT

- Course & Qualifier Satisfaction Survey Committee (Chair) - Surveying student opinion on courses and qualifier exams and presenting results to faculty
- PRISM (LGBTQ+) Committee - Event organization
- Social Committee - Event organization

#### Regular Member, President (2015-2016)

2013-2016

PHYSICS & PHYSICAL OCEANOGRAPHY UNDERGRADUATE SOCIETY

MUNL

- Led the undergraduate society to organize monthly social events, survey students for opinions on course material and program design, and created a scholarship.

### OUTREACH AND SCIENCE COMMUNICATION

#### Scientific Fact Checker

2024

BOOK – COSMIC COLLISIONS: SUPERGIANT VS. NEUTRON STAR | ISBN-13: 978-1536242256

#### Media Speaker & Volunteer

2023

2023 TOTAL SOLAR ECLIPSE EVENT, MEMORIAL UNIVERSITY OF NL

MUNL

#### Volunteer

2017

2017 PARTIAL SOLAR ECLIPSE EVENT, DUNLAP INSTITUTE

UofT

#### Volunteer

2017

RASC & DUNLAP INSTITUTE CANADA 150 STAR PARTY

UofT

#### Volunteer

2017

MATH DEPARTMENT GIRLS IN STEM EVENT

UofT

#### Volunteer

2016-2020

ASTROTOURS & ASTRO ON TAP

UofT

## Media, Interviews, & Press

---

Interview	<a href="#">Anna O’Grady   McWilliams Postdoctoral Fellow</a> , Gale Force Wins Podcast, Ep 225	<i>Feb. 2025</i>
Interview	<a href="#">Holiday Question Show</a> , Quirks and Quarks, CBC	<i>Dec. 2023</i>
Video	<a href="#">Stellar Struggles: Frank Kameny’s fight for LGBTQ+ equality</a> , Cosmos From Your Couch	<i>June 2023</i>
Docu.	<a href="#">Astronomer Searches for the Universe’s Largest Stars</a> , Imagine This	<i>June 2023</i>
Article	<a href="#">NL PhD student makes explosive discovery amongst the stars</a> , Peter Jackson, Saltwire	<i>June 2021</i>
Article	<a href="#">Stellar alumna: Astronomy scholar discovers new type of star</a> , Kelly Foss, MUN Gazette	<i>June 2021</i>
Article	<a href="#">On the Cusp of a New Understanding of the Stars</a> , Emily Deibert, Research2Reality	<i>Apr. 2021</i>
Press Rel.	<a href="#">UofT Student Discovers Rare Star Population</a> , Meaghan MacSween, Dunlap Institute	<i>Mar. 2021</i>