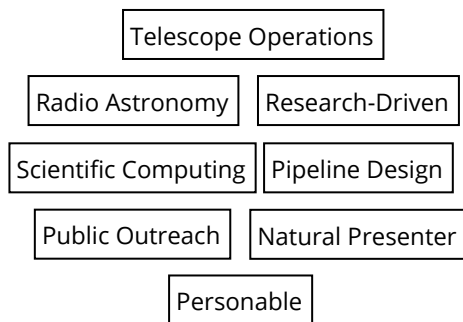


## PROFILE

I am the Senior Scientist at the James Clerk Maxwell Telescope. My expertise is in the field of star-formation with more than a decade of experience in reducing and analysing both interferometric and single dish data. My current research focus is in using primarily submillimetre observations to study the real-time flux variability of the youngest protostars in the Galaxy in order to better understand the physical conditions of forming solar systems. In addition, I innovate high-level software to monitor the calibration and efficiency of submillimetre/millimetre instrumentation and aid in general observatory operations. Passionate about science education and public outreach, since 2010 I have taught thousands of students of all ages and I have organised and hosted several large public events to observe phenomena such as eclipses and planetary transits. [ORCID: 0000-0002-6956-0730](https://orcid.org/0000-0002-6956-0730)

## KEY SKILLS



## TECHNICAL SKILLS

- **Languages:** Python, IDL
- **Software:** LaTeX, Github, Starlink
- **OS:** Linux, MacOS, Windows
- **Workshops:** [MKpy](#), [Scicoder](#)

## LANGUAGES

- English (Native)
- French (Conversational)

## EDUCATION

**PhD Astronomy** Dec 2017

**University of Victoria** Victoria, Canada

*Supervisor: Dr. Doug Johnstone*

From Gas and Dust to Protostars: Addressing The Initial Stages of Star Formation Using Observations of Nearby Molecular Clouds. <http://bit.ly/3ceKJ8T>

**B. Sc. Physics (Honors)** Jun 2012

**University of British Columbia** Kelowna, Canada

*Honors thesis supervisor: Dr. Erik Rosolowsky*

Honors Thesis: The Evolution of Giant Molecular Clouds in M33

## OBSERVATORY EXPERIENCE

**Senior Scientist** Sep 2019 - Present

**James Clerk Maxwell Telescope** Hilo, HI

- Manage and optimise scientific productivity at EAO/JCMT
- Direct an independent research program on protostellar variability
- Analyse and report on the performance of instrumentation
- Commission new instrumentation
- Provide technical, scientific, and logistical support for telescope users
- Innovate high-level programming of software
- Advise research fellows, visiting scientists, students

**Large Program Management Team** Aug 2016 - Present

**JCMT Transient Survey** Hilo, HI

- Produce and manage data products for 80+ member team
- Advise postdocs and students, enhancing survey productivity
- Work with management team to expand survey and organise efforts

**Support Astronomer** Sep 2017 - Aug 2019

**James Clerk Maxwell Telescope** Hilo, HI

- Led an independent research program
- Led calibration efforts for SCUBA-2 camera
- Provided general support for telescope users

**Research Assistant** May 2011 - Aug 2011

**University of British Columbia** Vancouver, Canada

- Derived atmospheric corrections for the Green Bank Telescope and Arecibo in order to aid in pulsar timing.

*Supervisor: Dr. Ingrid Stairs*

**Research Assistant** May 2009 - Aug 2010

**Dom. Radio Astrophysical Observatory** Penticton, Canada

- Project 1: Developed a data reduction/calibration pipeline for VLA data using Python/CASA. *Supervisor: Dr. Sean Dougherty*
- Project 2: HI Self Absorption of SNRs in the Canadian Galactic Plane Survey, testing galactic dust models. *Supervisor: Dr. Roland Kothes*

## CONFERENCES (ORAL)

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- 2020. **JCMT Virtual Workshop** (Virtual): Science at the JCMT.
- 2020. **AAS Annual Meeting** (Honolulu, USA): An Extraordinary Submillimetre Flare in a T Tauri Binary System
- 2019. **Orion Uncovered** (Leiden, NL): Highlights from the JCMT Transient Survey.
- 2019. **EAO Submillimetre Futures** (Nanjing, China): The JCMT Transient Survey; Led group science discussions.
- 2018. **JCMT Users Meeting** (Seoul, Korea): Led full day of Submm data reduction and analysis workshops.
- 2017. **JCMT Users Meeting** (Nanjing, China): Fragmentation and YSO Distribution: Southern Orion and Beyond.
- 2016. **Northwest Astronomy** (Bellingham, USA): How do Protostars Assemble Mass?
- 2016. **Star Formation 2016** (Exeter, UK): The JCMT Transient Survey
- 2016. **SFDE 2016** (Quy Nhon, Vietnam): A First Look at Southern Orion A with SCUBA-2
- 2015. **Orion (Un)Plugged**. (Vienna, Austria): A First Look at Southern Orion A with SCUBA-2
- 2014. **Olympian Symposium** (P. Katerini, Greece): Observing the Evolution of Starless Cores in Turbulent Simulations

## CONFERENCES (POSTER)

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- 2019. **CASCA Annual Meeting** (Montreal, Canada): Submillimetre Transient Science.
- 2017. **JCMT Users Meeting** (Nanjing, China): How Do Protostars Assemble Mass?
- 2016. **Star Formation 2016** (Exeter, UK): How Do Protostars Assemble Mass?
- 2014. **Filamentary Structure** (Charlottesville, USA): Observing the Evolution of Starless Cores in Turbulent Simulations
- 2013. **CASCA Annual Meeting** (Vancouver, Canada): Synthetic Observations of Turbulent Simulations
- 2012. **CASCA Annual Meeting** (Calgary, Canada): The Evolution of Giant Molecular Clouds in M33

## FIRST-AUTHORED PUBLICATIONS

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1. The JCMT Transient Survey: An Extraordinary Flare in the T Tauri Binary System JW 566  
[Mairs, S. et al. ApJ 871:72. 2019.](#)
2. The JCMT Transient Survey: Identifying Submillimeter Continuum Variability Over Several Year Timescales Using Archival JCMT Gould Belt Survey Observations.  
[Mairs, S. et al. ApJ 849:107. 2017.](#)
3. The JCMT Transient Survey: Data Reduction and Calibration Methods.  
[Mairs, S. et al. ApJ 843:55. 2017.](#)
4. The JCMT Gould Belt Survey: A First Look at Southern Orion A With SCUBA-2.  
[Mairs, S. et al. MNRAS 461:4022. 2016.](#)
5. The JCMT Gould Belt Survey: A Quantitative Comparison Between SCUBA-2 Data Reduction Methods.  
[Mairs, S. et al. MNRAS 454:2557. 2015.](#)
6. Synthetic Observations of the Evolution of Starless Cores in a Molecular Cloud Simulation: Comparisons with JCMT Data and Predictions for ALMA.  
[Mairs, S. et al. ApJ 783:60. 2014.](#)

**Editor of the [EAO Submillimeter Futures White Paper Series](#), including:**

Submillimeter Transient Science in the Next Decade.  
[Mairs, S. et al. 2019.](#)

## CONTRIBUTING AUTHOR PUBLICATIONS

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[Click here to view an ADS library containing a full list of all 30+ contributing author publications.](#)

The full list of publications is also included, below, for convenience.

## INVITED TALKS

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<b>Canadian Telescope Seminar Series</b>	Apr 2021
<b>“Science Highlights and Instrumentation at the JCMT”</b>	Canada (Virtual)
<b>2020 SMA Interferometry School</b>	Jan 2020
<b>“Combining Single Dish and Interferometric Data”</b>	Hilo, HI
<b>National Central University</b>	May 2019
<b>“The Highlights and Future of Submillimetre Transient Science”</b>	Zhongli, Taiwan
<b>Maunakea Science Seminar</b>	Mar 2019
<b>“An Extraordinary Flare in a T Tauri Binary”</b>	Hilo, HI
<b>Kyung-Hee University</b>	Feb 2018
<b>“A Tale of Two Surveys: Gould Belt and Transient Science”</b>	Seoul, Korea

## SELECTED PUBLIC OUTREACH

- 2013-Present. Regular **School Visits and community events**
- 2018-2020. **Maunakea Wonders Teacher's Conference:** DIY Astronomy for All Ages
- 2019. **Rotary Club of South Hilo** (Hilo, HI): Seeing the Unseeable: The Event Horizon Telescope.
- 2018. **Imiloa Astronomy Center.** (Hilo, HI): Where do baby stars come from?
- 2016. **Dominion Astrophysical Observatory Star Party** (Victoria, Canada): How our Sun was Born and Other Night Time Stories.
- 2016. **Royal Astronomical Society of Canada** (Sunshine Coast, Canada): Star Formation in a Nutshell.

## FELLOWSHIPS & SCHOLARSHIPS

- 2016-17 **Charles S. Humphrey Award** - \$2,500
- 2014-17 **NSERC Alexander Graham Bell CGS-D** - \$105,000
- 2012-13 **University of Victoria Fellowship** - \$10,000
- 2012-13 **Outstanding Graduate Entrance Award** - \$5,000
- 2011-12 **Deputy Vice Chancellor Scholarship** - \$1,000
- 2011 **NSERC Undergrad Student Research Award** - \$4,500
- 2010-11 **Deputy Vice Chancellor Scholarship** - \$1,500
- 2010 **NSERC Undergrad Student Research Award** - \$4,500
- 2009-10 **Trek Excellence Scholarship** - \$1,500
- 2008 **President's Entrance Scholarship** - \$2,000

## TEACHING EXPERIENCE

**Sessional Instructor** Jan 2019 - Jun 2019  
**University of Hawai`i at Hilo** Hilo, HI

*ASTR 351L*

- Practical Astronomical Observations Laboratory
- Submillimetre astronomy and instrumentation
- Magnetic fields, spectral cube analysis, proposal writing

**Public Education/Outreach Coordinator** May 2015 - Aug 2017  
**University of Victoria** Victoria, Canada

- Organised public events for astronomy department
- Managed weekly 32" observatory open houses
- Visited schools and led field trips to the campus observatory

**Sessional Instructor** Jan 2016 - Jun 2016  
**University of Victoria** Victoria, Canada

*ASTR 102*

- Prepared and delivered lectures for Astronomy 102
- Basics of observational astronomy, brief history of astrophysics
- Cosmology, stellar evolution, and life in the universe

**Laboratory Instructor** Sep 2012 - Dec 2016  
**University of Victoria** Victoria, Canada

- Instructed a variety of undergraduate laboratory sections
- Kinematics, Electricity & Magnetism, Spectral Lines
- Solar observations, stellar evolution, black holes, astrobiology

**Astronomy Laboratory Developer** Jan 2015 - Dec 2015  
**University of Victoria** Victoria, Canada

- Designed/tested new laboratory experiments for undergraduates
- Worked within a budget to produce engaging activities
- Wrote procedures to be included in existing lab manuals

**Laboratory Instructor** Jan 2010 - Jun 2012  
**University of British Columbia** Kelowna, Canada

- Instructed physics and astronomy undergraduate laboratory sections for first and second year students
- Modified an 8" Celestron Telescope for optical observations

## REFERENCES

Not available in public version of CV.