

# TOBY BROWN

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Department of Physics and Astronomy, McMaster University, Hamilton, Canada

## RESEARCH INTERESTS

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Extragalactic astronomy, galaxy evolution, star formation, observational astronomy

## PROFESSIONAL EXPERIENCE

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### Postdoctoral Fellow

October 2017 - present

*Department of Physics and Astronomy*

*McMaster University, Hamilton, Canada*

- Devising, leading and completing successful research into the star formation cycle of galaxies
- Supervising PhD and undergraduate students in astrophysics and machine learning
- Speaking at international conferences, research institutions and public events
- Collaborating with leading experts to form productive international partnerships
- Developing data analysis, machine learning and visualization software (primarily in Python)

## EDUCATION

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### Business Administration with Management

May 2018 - present

*McMaster University CCE*

*Hamilton, Canada*

- Continued education to ensure a strong foundation in business competencies, including finance, operations and general management

### Doctor of Philosophy (Ph.D.), Astrophysics

October 2013 - August 2017

*Swinburne University of Technology*

*Melbourne, Australia*

- Large multi-wavelength study of the gas and star formation cycle of nearby galaxies
- Supervisors: Dr. Barbara Catinella (primary), Dr. Luca Cortese, Prof. Virginia Kilborn

### Astrophysics MPhys, Hons

September 2009 - June 2013

*University of Liverpool & Liverpool John Moores University*

*Liverpool, UK*

- Received an Upper Second Class (2:1, GPA equivalent  $\sim 3.33 - 3.67$ )
- Science Editor at Liverpool Student Media, coordinating a team of student journalists

## SUPERVISING AND TEACHING EXPERIENCE

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### MacDATA Fellow Supervisor

March 2018 - present

*Dept. Physics & Astronomy, & MacDATA Institute, McMaster University*

*Hamilton, Canada*

- Supervisor of McMaster's MacDATA Graduate (PhD level) Fellow
- Won C\$18,000 grant to pay student salary for 9 month astronomy-data science collaboration

### Integrated Science Project Supervisor

November 2017 - present

*McMaster University*

*Hamilton, Canada*

- Supervisor for 8 high-achieving undergraduate students pursuing an Integrated Science degree
- Teaching and mentoring using problem-based learning

### Teaching Assistant

February - November 2016

*University of Western Australia*

*Perth, Australia*

- Demonstrating, supervising and grading *Quantum Mechanics and Electromagnetism* labs and tutorials

### Teaching Assistant

February - October 2015

*Swinburne University of Technology*

*Melbourne, Australia*

- Demonstrating, supervising and grading *Electronic Systems* labs and tutorials

**Undergraduate Project Supervisor***Swinburne University*

September 2014 - July 2015

*Melbourne, Australia*

- Supervising 4 final year Animation undergraduate student projects

**LEADERSHIP AND SERVICE ROLES**

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**Bargaining Team Member***Canadian Union of Public Employees - Local 3906*

October 2018 - present

*Hamilton, Canada*

- Elected to represent union members at the bargaining table with university leadership
- Negotiate and ratify postdoctoral collective agreement

**Field Director***Municipal Council Election Campaign*

July - October 2018

*Hamilton, Canada*

- Devising campaign strategy and coordinating approximately 120 volunteers
- Campaign data analytics lead

**Senior Field Organiser***Ontario New Democratic Party*

April - June 2018

*Hamilton, Canada*

- Coordinating approximately 200 volunteers for ONDP leader's successful re-election campaign

**Political Action Committee Member***Canadian Union of Public Employees - Local 3906*

January 2018 - present

*Hamilton, Canada*

- Oversee political donations, events and awareness campaigns of union

**Steering Committee Member***Early Career Researcher Chapter*

May 2016 - May 2017

*Astronomical Society of Australia*

- Advocating for and represented early career astronomers in Australia
- Establish legacy database of students and postdocs who have left the field so that chapter members have ready-made networks outside of astronomy

**Student Mentor***Swinburne University of Technology*

January - October 2015

*Melbourne, Australia*

- Assisting peers with academic and personal issues

**Scientific Organising Committee Member**

- ICRARcon, Mandura, Western Australia

**Local Organising Committee Member**

- ICRARcon, Mandura, Western Australia
- The Role of Neutral Hydrogen in Galaxy Evolution, Kuching, Borneo

**CONTRIBUTED CONFERENCE TALKS**

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| KIAA Forum on Gas in Galaxies, Peking University, Beijing, China               | 2018 |
| European Week of Astronomy, Liverpool, UK                                      | 2018 |
| MockPerth, Perth, Australia  | 2017 |
| Pathfinders HI Science Coordination Committee meeting, Cape Town, South Africa | 2016 |
| Drifting through the Cosmic Web, Aix-en-Provence, France                       | 2015 |
| The Many Pathways to Galaxy Growth, Prato, Italy                               | 2015 |

## **PUBLIC SPEAKING AND COMMUNICATION**

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### **Award-winning public talks**

- Speaking to audiences of 700+, including the March for Science, the British Council's Famelab Australia Final, British live event series Cosmic Shambles

### **Media coverage**

- Providing comment on STEM issues for local and national media, including The Conversation, ABC Radio National, ABC 720 Perth, ABC Melbourne

### **Media commentary**

- Stories on my research have been featured in Scientific American, News.com.au, The Daily Telegraph, Space.com, Gizmodo, IFL Science, among others

## **INVITED COLLOQUIA**

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| Royal Military College of Canada, Kingston, Canada                   | 2018 |
| Queens University, Kingston, Canada                                  | 2018 |
| University of Victoria, Victoria, Canada                             | 2018 |
| National Research Council Hertzberg Institute, Victoria, Canada      | 2018 |
| University of British Columbia, Vancouver, Canada                    | 2018 |
| McMaster University, Hamilton, Canada                                | 2017 |
| Liverpool John Moores University, Liverpool, UK                      | 2016 |
| Max Planck Institute for Extraterrestrial Physics, Garching, Germany | 2016 |
| European Southern Observatory, Garching, Germany                     | 2016 |
| University College London, London, UK                                | 2016 |
| University of Hertfordshire, Hatfield, UK                            | 2016 |
| LERMA, l'Observatoire de Paris, Paris, France                        | 2016 |
| Institut d'astrophysique de Paris, Paris, France                     | 2016 |
| ICRAR, University of Western Australia, Perth, Australia             | 2015 |
| Centre de Recherche Astrophysique de Lyon, Lyon, France              | 2015 |

## **SURVEY MEMBERSHIPS**

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JINGLE (JCMT dust and gas In Nearby Galaxies Legacy Exploration, PI Wilson)  
DEVILS (Deep Extragalactic Visible Legacy Survey, PI Davies)  
DINGO (Deep Investigation of Neutral Gas Origins, PI Meyer)  
xGASS (extended GALEX Arecibo SDSS Survey, PI Catinella)  
HIX (H I eXcess galaxy survey, PI Lutz)