

# TOBY BROWN

tobiashenrybrown@gmail.com

Department of Physics and Astronomy  
McMaster University, Hamilton, Canada

## RESEARCH INTERESTS

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Extragalactic astronomy, galaxy evolution, ISM properties, galaxy environments, spectral stacking

## EXPERIENCE

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### Post Doctoral Fellow

October 2017 - Present

*Department of Physics and Astronomy*

*McMaster University, Hamilton, Canada*

- My research focusses on the star formation cycle of galaxies
- Reduction and analysis of resolved and unresolved radio and optical data
- Other responsibilities include paper and proposal writing

## EDUCATION

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### Ph.D. in Astrophysics

October 2013 - March 2017

*Thesis: The Life Cycle of Nearby Galaxies*

Centre for Astrophysics and Supercomputing

**Swinburne University of Technology, Melbourne, Australia**

- Using large multi-wavelength datasets and novel techniques to disentangle the secular and external processes that dictate the gas-star formation cycle of galaxies.
- Supervisors: Dr. Barbara Catinella (primary), A. Prof. Virginia Kilborn, Dr. Luca Cortese

### MPhys in Astrophysics (Hons, 2:1)

September 2009 - June 2013

*Dissertation: A population of molecular clouds in the inner Galaxy*

**University of Liverpool & Liverpool John Moores University, Liverpool, United Kingdom**

## LEADERSHIP AND VOLUNTARY ROLES

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### Mentor - Integrated Science degree

Dept. Physics and Astronomy, McMaster University

2017 - present

### Steering Committee Student Representative

Early Career Researcher Chapter, Astronomical Society of Australia

2016

### Member of Scientific and Local Organising Committees

ICRARcon, Mandura, Western Australia

2016

### Local Organising Committee Member

The Role of Neutral Hydrogen in Galaxy Evolution, Kuching, Borneo

2014

### Student Mentor

Swinburne University of Technology, Melbourne, Australia

2014-2015

### Peer Mentor and Career Advisor

Volunteer Centre Liverpool, Liverpool, UK

2012 - 2013

## TEACHING EXPERIENCE

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### Lab Demonstrator

March 2016 - May 2016

*Quantum Mechanics and Electromagnetism, University of Western Australia*

- Demonstrating labs and scientific concepts to 2nd year physics majors.
- Supervision and grading of lab reports and tutorials.

### Lab Demonstrator

February 2015 - October 2015

*Electronic Systems, Swinburne University of Technology*

- Demonstrating, supervision and grading of lab reports and tutorials.

## CONTRIBUTED CONFERENCE TALKS

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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

## OBSERVING EXPERIENCE

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Radio Astronomy: Interferometric (ATCA, 7 nights) and single dish (Arecibo, 1 night) HI spectroscopy.  
Optical Astronomy: Photometry (DECAM, 2 nights) and IFU (WiFeS, 1 night) spectroscopy.

## SCIENCE COMMUNICATION AND OUTREACH

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- Science Communicator** 2014 - present
- Providing comment on radio stations incl. ABC Radio National, ABC 720 Perth, ABC Melbourne, RTR-FM, Joy FM, 6EBA FM.
  - Writing and delivering award-winning (Cosmic Shambles, Famelab Australia Finalist) public talks for audiences of 700+.
- Featured in the Press** 2014 - present
- My research has been covered in the general press, incl. the Daily Telegraph, Gizmodo, IFL Science and Scientific American.
- Outreach Assistant** June 2016 - March 2017  
*ICRAR, University of Western Australia*
- Delivering public talks and seminars.
  - Teaching school classes from 11+ and facilitating discussions of science.

## COLLOQUIA AND SEMINARS

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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

## COMPUTING SKILLS

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Languages: Python, IDL, L<sup>A</sup>T<sub>E</sub>X, Unix shell scripts, some use of SQL  
Operating Systems: Unix/Linux, Mac OS, Windows

## SURVEY MEMBERSHIPS

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JINGLE (JCMT dust and gas In Nearby Galaxies Legacy Exploration, PI Wilson)	2017
DEVILS (Deep Extragalactic Visible Legacy Survey, PI Davies)	2017
DINGO (Deep Investigation of Neutral Gas Origins, PI Meyer)	2016 -
xGASS (extended GALEX Arecibo SDSS Survey, PI Catinella)	2015 -
HIX (HI eXcess galaxy survey, PI Lutz)	2014 -

## LIST OF PUBLICATIONS

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6. **Brown, T.**; Cortese, L.; Catinella, B.; Kilborn, V.A, 2018, *The role of atomic hydrogen in regulating the scatter of the massmetallicity relation*, MNRAS, 473, 1868
5. Stevens, A. & **Brown, T.**, 2017, *Physical drivers of galaxy atomic gas content: exploring environmental and evolutionary effects with Dark Sage*, MNRAS, 471, 447
4. Lutz, K. A.; Kilborn, V.A.; Catinella, B.; Koribalski, B. S.; **Brown, T.**; Cortese, L.; Denes, H.; Jozsa, G. I. G.; Wong, O. I., 2017, *The HIX galaxy survey I: Study of the most gas rich galaxies from HIPASS*, MNRAS, 467, 1083
3. Janowiecki, S.; Catinella B.; Cortese, L.; Saintonge, A.; **Brown, T.**, Wang, J., 2017, *xGASS: Exceptionally gas-rich central galaxies in small groups and their connections to pre-processing and galaxy evolution*, MNRAS, 466, 4795
2. **Brown, T.**; Catinella, B.; Cortese, L.; Lagos, C.d.P. ; Dave, R.; Kilborn, V.A.; Haynes, M.P.; Giovanelli, R.; Rafieferantsoa, M., 2017, *Cold gas stripping in satellite galaxies: from pairs to clusters*, MNRAS, 466, 1275
1. **Brown, T.**; Catinella, B.; Cortese, L.; Kilborn, V.A.; Haynes, M.P.; Giovanelli, R., 2015, *The effect of structure and star formation on the gas content of nearby galaxies*, MNRAS, 452, 2479

## REFERENCES

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On request.