

TOBY BROWN

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Department of Physics and Astronomy
McMaster University, Hamilton, Canada

RESEARCH INTERESTS

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

EXPERIENCE

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

Ph.D. in Astrophysics

October 2013 - March 2017

Thesis: Revealing the gas cycle in 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

Steering Committee Student Representative

Early Career Researcher Chapter, Astronomical Society of Australia

2016 - present

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

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

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

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

Outreach Research Assistant June 2016 - present
ICRAR, University of Western Australia

- Delivering public talks and seminars.
- Teaching school classes from 11+ and facilitating discussions of science.

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 (Famelab Australia Finalist) public talks for audiences of 300+.
· Writing articles for popular science publications incl. Physics World, Guru Magazine, Institute of Physics magazine.

Astrotour Guide April 2014 - November 2015
Swinburne University of Technology

- Hosting and delivering virtual reality content to educate and entertain audiences about astronomy.

COLLOQUIA AND SEMINARS

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

Languages: Python, IDL, L^AT_EX, Unix shell scripts, some use of SQL
Operating Systems: Unix/Linux, Mac OS, Windows

SURVEY MEMBERSHIPS

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

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

Dr. Barbara Catinella	University of Western Australia Perth, Australia	+61 (0)8 6488 7760 barbara.catinella@uwa.edu.au
Dr. Luca Cortese	University of Western Australia Perth, Australia	+61 (0)8 6488 3663 luca.cortese@uwa.edu.au
A. Prof. Virginia Kilborn	Swinburne University of Technology Melbourne, Australia	+61 (0)3 9214 4380 vkilborn@astro.swin.edu.au