

# Ryan Chown

Ph.D. Candidate

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## EDUCATION

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### McMaster University

Ph.D. Astronomy

**Supervisors:** Prof. Christine D. Wilson and Prof. Laura Parker

Hamilton, ON

Expected 08/2021

### McGill University

M.Sc. Physics

**Thesis:** *Mapping the Millimeter-wave Sky with Combined South Pole Telescope and Planck Data*

**Supervisor:** Prof. Gil Holder

Montreal, QC

05/2015 - 05/2017

### McGill University

B.Sc. Physics, with a Minor in Computer Science

Montreal, QC

09/2012 - 04/2015

## AWARDS

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Visiting Scholar, Tsinghua University, Beijing, China	2019
Mitacs Globalink Research Award	2018
McMaster Graduate Fellowship	2018
McGill University Graduate Excellence Award in Physics	2015 and 2016
Carl Reinhardt Fellowship	2015
McGill and Novelis Global Technologies Summer Research Award	2014
McGill Summer Research Award	2013 and 2015

## COLLABORATIONS

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The Virgo Environment Traced in CO survey (VERTICO; an ALMA large program)	2019-
The JCMT Dust & Gas in Nearby Galaxies Legacy Survey (JINGLE)	2017-
The South Pole Telescope Collaboration	2013-2017

## TEACHING EXPERIENCE

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PHYS 1AA3 Teaching Assistant	McMaster
<i>Introduction to Modern Physics</i>	2020
PHYS 1A03 Teaching Assistant	McMaster
<i>Introductory Physics</i>	2018, 2019, 2020
PHYS 1E03 Teaching Assistant	McMaster
<i>Waves, Electricity, and Magnetic Fields</i>	2018
ASTRO 1F03 Teaching Assistant	McMaster

<i>Astronomy and Astrophysics</i>	2017
PHYS 183 Teaching Assistant	McGill
<i>The Milky Way and Beyond</i>	2016 and 2017
PHYS 230 Teaching Assistant	McGill
<i>Dynamics of Simple Systems</i>	2015 and 2016

## PROFESSIONAL EMPLOYMENT

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Beta tester for the ARCADE tool for working with ALMA data	Fall 2020
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## OUTREACH

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Astronomy on Tap Montreal	Montreal, QC
Gave a talk on “Patterns in the Cosmic Microwave Background.”	2017
Astro McGill	McGill University
Volunteered at public Astro Nights.	2016-2017
Physics Matters	McGill University
I created the website for this program to advertise public physics talks being given.	2016-2017
Eureka! Science Festival	Montreal, QC
I helped organize the McGill booth, and instructed young kids with a laser maze activity.	2015

## INVITED SEMINARS

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Shanghai Astronomical Observatory, Shanghai, China	08/2018
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## CONTRIBUTED TALKS

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<i>Exploring Gas in and Around Galaxies</i> meeting, Tsinghua University, Beijing	7/2018
<i>KIAA Forum on Gas in Galaxies</i> , Peking University, Beijing	6/2018
<i>SDSS Chinese MaNGA Meeting</i> , University of Chinese Academy of Sciences, Beijing	6/2018
<i>South Pole Telescope Collaboration Conference</i> , University of Chicago, IL	7/2017
<i>The Centre for Research in Astrophysics of Quebec (CRAQ) Annual Meeting</i> , Montreal, QC	5/2017
<i>South Pole Telescope Collaboration Conference</i> , University of Chicago, IL	8/2016
<i>South Pole Telescope Collaboration Conference</i> , University of Chicago, IL	7/2015

## CONFERENCE POSTERS

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<i>Canadian Astronomical Society Annual Conference</i> , York University, Toronto, ON (online)	5/2020
<i>Views on the ISM in galaxies in the ALMA era</i> , University of Bologna, Italy	9/2019
<i>Canadian Astronomical Society Annual Conference</i> , McGill University, Montreal, QC	6/2019

## APPROVED OBSERVING PROPOSALS

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### As P.I.:

1. JCMT 21A – “Measuring global CO(2-1) to supplement interferometric observations from the EDGE survey.”
2. JCMT 18B – “Observing red star-forming galaxies from xCOLD GASS with SCUBA-2.”
3. JCMT 18A – “Extending the JINGLE RxA Samples to Include ‘Red Misfit’ Galaxies.”

### As Co-I.:

1. ALMA Cycle 7 (Large Program) – “The Virgo Environment Traced in CO survey (VERTICO).” P.I. T. Brown.
2. ALMA Cycle 7 – “Mapping CO emission in galaxies from the JINGLE survey.” P.I. C.D. Wilson.
3. JCMT 20A (Large Program) – “JINGLE at the edge: the ISM of starbursts and green valley galaxies.” P.I. L.-H. Lin.
4. JCMT 19B – “Observing CO(2-1) in Red Star-forming Galaxies.” P.I. L.-H. Lin.

## PUBLICATIONS

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### A. Papers in preparation

1. **R. Chown**, et al. “The molecular gas and dust properties of red star-forming galaxies.” (2021).
2. **R. Chown**, et al. “Environmental dependence of the spatially-resolved *WISE* 12  $\mu\text{m}$  vs. CO(1-0) relationship in Virgo cluster galaxies.” (2021).

### B. First or second author papers

*This set of 5 papers has 77 citations (68 refereed) as of January, 2021.*

1. **R. Chown**, et al. “A new estimator of resolved molecular gas in nearby galaxies.” MNRAS 500 (1), 1261-1278 (2021).
2. **R. Chown**, et al. “Linking bar- and interaction-driven molecular gas concentration with centrally-enhanced star formation in EDGE-CALIFA galaxies.” MNRAS 484 (4), 5192-5211 (2019).
3. **R. Chown**, et al. “Maps of the Southern millimeter-wave sky from combined 2500  $\text{deg}^2$  SPT-SZ and *Planck* temperature data.” ApJS 239 (1), 10 (2018).
4. Y. Omori, **R. Chown**, et al. “A 2500  $\text{deg}^2$  CMB lensing map from combined South Pole Telescope and *Planck* data.” ApJ 849 (2), 124 (2017).
5. T. M. Crawford, **R. Chown**, et al. “Maps of the Magellanic Clouds from combined South Pole Telescope and *Planck* data.” ApJS 227 (2), 23 (2016).

### C. Other papers

*This set of 10 papers has 206 citations (196 refereed) as of January, 2021.*

6. L.M. Mocanu, et al. “Consistency of cosmic microwave background temperature measurements in three frequency bands in the 2500-square-degree SPT-SZ survey.” JCAP 07, 038, (2019).
7. Y. Omori, et al. “DES Year 1 Results: Cross-correlation between DES Y1 galaxy weak lensing and SPT+*Planck* CMB weak lensing.” Phys. Rev. D 100, 043517 (2019).

8. J. Prat, et al. “Cosmological lensing ratios with DES Y1, SPT and *Planck*.” MNRAS 487, 1363-1379 (2019).
9. Y. Omori, et al. “DES Year 1 Results: tomographic cross-correlations between DES galaxies and CMB lensing from SPT+*Planck*.” Phys. Rev. D 100, 043501 (2019).
10. T.M.C. Abbott, et al. “DES Year 1 Results: Joint analysis of galaxy clustering, galaxy lensing, and CMB lensing two-point functions.” Phys. Rev. D 100, 023541 (2019).
11. G. Simard, et al. “Constraints on cosmological parameters from the angular power spectrum of a combined 2500 deg<sup>2</sup> SPT-SZ and *Planck* gravitational lensing map.” ApJ 860 (2), 137 (2018).
12. Z. Hou, et al. “A comparison of maps and power spectra determined from SPT and *Planck* data.” ApJ 853 (1), 3 (2018).
13. K. Aylor, et al. “A Comparison of Cosmological Parameters Determined from CMB Temperature Power Spectra from the South Pole Telescope and the *Planck* Satellite.” ApJ 850 (1), 3 (2017).
14. B. Soergel, S. Flender, et al. “Detection of the kinematic Sunyaev-Zel’dovich effect with DES Year 1 and SPT.” MNRAS 461 (3), 3172-3193 (2016).
15. E. Baxter, et al. “Joint measurement of lensing-galaxy correlations using SPT and DES SV data.” MNRAS 461 (4), 4099-4114 (2016).