

CHELSEA ELECTRA SHARON

CURRICULUM VITÆ

McMaster University
Department of Physics & Astronomy
ABB-349, 1280 Main St. W., Hamilton, ON L8S-4M1

1 (905) 525-9140 ext. 23182
sharonc@physics.mcmaster.ca
<http://www.physics.mcmaster.ca/~sharonc>

PROFESSIONAL APPOINTMENTS

William & Caroline Herschel Postdoctoral Fellow

McMaster University
Hamilton, ON

August 2016–Present

Postdoctoral Research Associate

Cornell University
Ithaca, NY

July 2013–August 2016

Advisor: Prof. Dominik Riechers

EDUCATION

Rutgers, the State University of New Jersey

New Brunswick, NJ

Ph.D. in Physics

May 2013

Dissertation: *Molecular Gas in Dusty High-z Galaxies*

Advisor: Prof. Andrew Baker

California Institute of Technology

Pasadena, CA

B.S. in Astrophysics

June 2007

Senior Thesis: *The 1 μ m Spectra of FU Ori Type Stars*

Advisor: Prof. Lynne Hillenbrand

AWARDS

ALMA Ambassadors (\$10k research grant)

McMaster

Spring 2017

National Radio Astronomy Observatory

William & Caroline Herschel Postdoctoral Fellowship

McMaster

Fall 2016–Summer 2018

International Travel Grant for IAU General Assembly

Cornell

2015

American Astronomical Society

American Fellowship (\$20k stipend)

Rutgers

Summer 2012–Spring 2013

American Association of University Women

Government Assistance in Areas of National Need Fellowship

Rutgers

Fall 2011–Summer 2012,
Fall 2007–Summer 2008

National Science Foundation

Richard J. Plano Outstanding Teaching Assistant Award

Rutgers

2010

Carstarphen Foundation Scholarship

Caltech

Fall 2006–Spring 2007

Arrola DuBridgde Scholarship

Caltech

Fall 2006–Spring 2007

Flintridge Foundation Fellowship

Caltech

Summer 2005

REFEREED PUBLICATIONS

13. *The CO Luminosity Density at High- z (COLD z) Survey: A Sensitive, Large Area Blind Search for Low- J CO Emission from Cold Gas in the Early Universe with the Karl G. Jansky Very Large Array*
R. Pavesi, **C. E. Sharon**, D. Riechers, J. Hodge, R. Decarli, F. Walter, C. Carilli, E. Daddi, I. Smail, M. Dickinson, R. Ivison, M. Sargent, E. da Cunha, M. Aravena, J. Darling, V. Smolčić, N. Scoville, P. Capak, & J. Wagg
Accepted, 6/6/2018, *The Astrophysical Journal*
12. *Hidden In Plain Sight: A Massive, Dusty Starburst in A Galaxy Protocluster at $z=5.7$ in the COSMOS Field*
R. Pavesi, D. A. Riechers, **C. E. Sharon**, V. Smolčić, A. L. Faisst, E. Schinnerer, C. L. Carilli, P. L. Capak, N. Scoville, & G. J. Stacey
Accepted, 5/19/2018, *The Astrophysical Journal*; [arXiv:1803.08048](https://arxiv.org/abs/1803.08048)
11. *CO-Free Star Formation and Black Hole Activity in 3C 368 at $z = 1.131$: Coeval Growth of Stellar and Supermassive Black Hole Masses*
C. Lamarche, G. J. Stacey, D. Brisbin, C. Ferkinhoff, S. Hailey-Dunsheath, T. Nikola, D. Riechers, **C. E. Sharon**, H. Spoon, & A. Vishwas
2017, *The Astrophysical Journal*, 836, 123; [arXiv:1701.03736](https://arxiv.org/abs/1701.03736)
10. *ALMA Reveals Weak [NII] Emission in “Typical” Galaxies and Intense Starbursts at $z = 5-6$*
R. Pavesi, D. Riechers, P. Capak, C. Carilli, **C. E. Sharon**, G. J. Stacey, A. Karim, N. Scoville, & V. Smolčić
2016, *The Astrophysical Journal*, 832, 151; [arXiv:1607.02520](https://arxiv.org/abs/1607.02520)
9. *A Total Molecular Gas Mass Census in $z \sim 2-3$ Star-forming Galaxies: Low- J CO Excitation Probes of Galaxies’ Evolutionary States*
C. E. Sharon, D. Riechers, J. Hodge, C. L. Carilli, F. Walter, A. Weiß, K. K. Knudsen, & J. Wagg
2016, *The Astrophysical Journal*, 827, 18; [arXiv:1606.02309](https://arxiv.org/abs/1606.02309)
8. *COLD z : Karl G. Jansky Very Large Array discovery of a gas-rich galaxy in COSMOS*
L. Lentati, J. Wagg, C. L. Carilli, D. Riechers, P. Capak, F. Walter, M. Aravena, E. da Cunha, J. A. Hodge, R. J. Ivison, I. Smail, **C. E. Sharon**, E. Daddi, R. Decarli, M. Dickinson, M. Sargent, N. Scoville, & V. Smolčić
2015, *The Astrophysical Journal*, 800, 67; [arXiv:1412.1262](https://arxiv.org/abs/1412.1262)
7. *Excitation Conditions in the Multi-component Submillimeter Galaxy SMM J00266+1708*
C. E. Sharon, A. J. Baker, A. I. Harris, L. J. Tacconi, D. Lutz, & S. N. Longmore
2015, *The Astrophysical Journal*, 798, 133; [arXiv:1411.0700](https://arxiv.org/abs/1411.0700)
6. *Very Large Array Mapping of the CO(1-0) Line in SMM J14011+0252*
C. E. Sharon, A. J. Baker, A. I. Harris, & A. P. Thomson
2013, *The Astrophysical Journal*, 765, 6; [arXiv:1212.5955](https://arxiv.org/abs/1212.5955)
5. *JVLA imaging of $^{12}\text{CO } J = 1 - 0$ and free-free emission in lensed submillimetre galaxies*
A. P. Thomson, R. J. Ivison, I. Smail, A. M. Swinbank, A. Weiß, J. P. Kneib, P. P. Papadopoulos, A. J. Baker, **C. E. Sharon**, & G. A. van Moorsel
2012, *Monthly Notices of the Royal Astronomical Society*, 425, 2203; [arXiv:1207.0492](https://arxiv.org/abs/1207.0492)
4. *CO($J \rightarrow 1 - 0$) in $z > 2$ Quasar Host Galaxies: No Evidence for Extended Molecular Gas Reservoirs*
D. A. Riechers, C. L. Carilli, R. J. Maddalena, J. Hodge, A. I. Harris, A. J. Baker, F. Walter, J. Wagg, P. A. Vanden Bout, A. Weiß, & **C. E. Sharon**
2011, *The Astrophysical Journal*, 739, L32; [arXiv:1106.2553](https://arxiv.org/abs/1106.2553)
3. *CO $J=1-0$ Spectroscopy of Four Submillimeter Galaxies with the Zpectrometer on the Green Bank Telescope*
A. I. Harris, A. J. Baker, S. G. Zonak, **C. E. Sharon**, R. Genzel, K. Rauch, G. Watts, & R. Creager
2010, *The Astrophysical Journal*, 723, 1139; [arXiv:1006.3691](https://arxiv.org/abs/1006.3691)

2. *F, G, K, M Spectral Standards in the Y Band (0.95-1.11 μm)*
C. E. Sharon, L. Hillenbrand, W. Fischer, & S. Edwards
 2010, *The Astronomical Journal*, 139, 646; [arXiv:0911.1992](#)
1. *The X-ray Luminosity Function of AGN at $z\sim 3$*
 J. Aird, K. Nandra, A. Georgakakis, E. S. Laird, C. C. Steidel, & **C. E. Sharon**
 2008, *Monthly Notices of the Royal Astronomical Society*, 387, 883; [arXiv:0804.0760](#)

CONFERENCE PROCEEDINGS (UNREFEREED)

2. *Spatial Variation of CO Excitation in High- z Galaxies*
C. E. Sharon, A. J. Baker, A. I. Harris, D. Lutz, L. J. Tacconi, & A. S. Tagore
 2013, *The Interstellar Medium in High Redshift Galaxies Comes of Age*,
 NRAO Conference Proceedings
1. *Spatial Variation of CO Excitation in High- z Galaxies*
C. E. Sharon, A. J. Baker, A. I. Harris, D. Lutz, & L. J. Tacconi
 2013, *Proceedings of the International Astronomical Union*, 292, 253

PUBLICATIONS SUBMITTED OR IN PREPARATION

1. *Resolved Molecular Gas and Star Formation Properties of the Strongly Lensed Galaxy SDSS J0901+1814*
C. E. Sharon, A. S. Tagore, A. J. Baker, J. Rivera, C. R. Keeton II, L. J. Tacconi, D. Lutz, D. J. Wilner,
 A. E. Shapley, H. Lin, T. Diehl, S. S. Allam, & D. L. Tucker
 In Preparation

APPROVED OBSERVING PROPOSALS AS PI

Atacama Large Millimeter/submillimeter Array: Cycle 5, Cycle 2

IRAM Northern Extended Millimeter Array (formerly Plateau de Bure Interferometer): Winter 2017,
 Summer 2017 $\times 2$, Winter 2010, Winter 2009

Karl G. Jansky Very Large Array: 2018A $\times 3$, 2017A, 2016A, 2015B $\times 3$, 2014B, 2013B, 2013A, 2012A $\times 2$,
 2010C $\times 2$, 2010B, 2009B

Submillimeter Array: 2010A

SCIENTIFIC PRESENTATIONS

Seminars:

YCAA Seminar	Yale University	April 2018
Astronomy Seminar	University of Massachusetts, Amherst	October 2017
Galaxies & Cosmology Seminar	Harvard Center for Astrophysics	October 2017
Radio Astronomy Lab Seminar	University of California Berkeley	September 2015
Friday Lunch Astrophysics Seminar	University of California Santa Cruz	September 2015
Astronomy Seminar	Universidad Diego Portales	March 2015
Astronomy Seminar	Pontificia Universidad Católica de Chile	March 2015
TUNA Lunch Talk	NRAO/University of Virginia	December 2012
Astronomy Seminar	McGill University	November 2012
Astronomy Seminar	Rice University	February 2012

Conference Talks:

231st Meeting of the American Astronomical Society	Washington, D.C.	January 2018
The origin of galaxies, stars, and planets in the era of ALMA	Pasadena, California	November 2017
(Invited) Star Formation in Different Environments: From Local Clouds to Distant Galaxies	Quey Nhon, Vietnam	August 2017
Twenty Years of Submillimeter Galaxies	Durham, UK	July 2017
Measuring Star Formation in the Radio, Millimeter, and Submillimeter	Manchester, UK	July 2017
Developing the ngVLA Science Program	Socorro, New Mexico	June 2017
Half A Decade of ALMA: Cosmic Dawns Transformed	Indian Wells, California	September 2016
Molecular Gas in Galactic Environments	Charlottesville, Virginia	April 2016
227th Meeting of the American Astronomical Society	Kissimmee, Florida	January 2016
Dissecting Galaxies Near and Far: High Resolution Views of Star Formation and the ISM	Santiago, Chile	March 2015
Transformational Science in the ALMA Era: Multi-Wavelength Studies of Galaxy Evolution	Charlottesville, Virginia	August 2014
Gas and Stars in Galaxies: A Multi-wavelength 3D Perspective	Garching, Germany	March 2014
221st Meeting of the American Astronomical Society (Dissertation Talk)	Long Beach, California	January 2013
The Interstellar Medium in High Redshift Galaxies Come of Age	Charlottesville, Virginia	September 2012
Molecules in Galaxies	Oxford, UK	July 2010

Posters:

49th Annual Meeting of the Canadian Astronomical Society	Victoria, British Columbia	May 2018
IAU Symposium 315: From Interstellar Clouds to Star Forming Galaxies: Universal Processes?	Honolulu, Hawaii	August 2015
IAU Symposium 319: Galaxies at High- z and Their Evolution Over Cosmic Time	Honolulu, Hawaii	August 2015
Unveiling the AGN-Galaxy Evolution Connection	Puerto Varas, Chile	March 2015
IAU Symposium 292: Molecular Gas, Dust, and Star Formation in Galaxies	Beijing, China	August 2012
The Baryon Cycle	Irvine, California	June 2012
Tri-State Astronomy Conference	New York, New York	October 2011
215th Meeting of the American Astronomical Society	Washington, D.C.	January 2010
5th NAIC/NRAO Single-Dish Summer School	Arecibo, Puerto Rico	July 2009

TEACHING EXPERIENCE

Part-time Sessional Faculty

<i>Astronomy 2E03: Introduction to Planetary Science</i> Instructor: Prof. Peter Sutherland	McMaster	Winter 2018
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Tutorial Leader

<i>Integrated Science 3A12: Light, the Universe, and Everything</i> Instructors: Prof. Sarah Symons, Prof. Ralph Pudritz, Prof. Duncan O'Dell	McMaster	Winter 2017, 2018
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Guest Lecturer <i>Astronomy/Origins 2B03: The Big Questions</i> Instructor: Prof. Laura Parker	McMaster	Fall 2017
Guest Lecturer <i>REU Summer Lecture Series</i>	Cornell	Summer 2015, 2016
Guest Lecturer <i>ASTR 2211: Stars, Galaxies, and Cosmology</i> Instructor: Prof. Dominik Riechers	Cornell	Spring 2016
Guest Lecturer <i>ASTR 1195: Observational Astronomy</i> Instructor: Prof. Gordon Stacey	Cornell	Fall 2014, 2015
Guest Lecturer <i>ASTR 3303: Galaxies Across Cosmic Time</i> Instructor: Prof. Dominik Riechers	Cornell	Fall 2013
Physics Tutor <i>Bunting-Cobb Residence Hall for Women in STEM</i>	Rutgers	Fall 2010–Spring 2013
Guest Lecturer <i>Ph343: Observational Radio Astronomy</i> Instructor: Prof. Andrew Baker	Rutgers	Spring 2011
Teaching Assistant <i>Ph115: Extended Analytical Physics I</i> Instructor: Prof. Suzanne Brahmia	Rutgers	Fall 2009
Teaching Assistant <i>Ph343: Observational Radio Astronomy</i> Instructor: Prof. Andrew Baker	Rutgers	Spring 2009
Undergraduate Teaching Assistant <i>Ay1: The Evolving Universe</i> Instructor: Prof. Charles Steidel	Caltech	Spring 2007

PEDAGOGICAL TRAINING

Education 650: Peer-Evaluated Teaching Experience (Completion of Instructional Skills Workshop) MacPherson Institute for Leadership, Innovation, and Excellence in Teaching McMaster University		Winter 2018
Teaching Scientific Thought & Practices Workshop 231st Meeting of the American Astronomical Society		January 2018
Astro 101 Teaching Tools Using Multiwavelength Astronomy Workshop 231st Meeting of the American Astronomical Society		January 2018
New Methods for Teaching in the Flipped Classroom Workshop 231st Meeting of the American Astronomical Society		January 2018
First Workshop for Indigenous Astronomy in the Classroom University of Toronto		November 2017
Education 751: Principles & Practices of University Teaching MacPherson Institute for Leadership, Innovation, and Excellence in Teaching McMaster University		Fall 2017

Education 700: Essential Skills in Teaching and Learning (II) MacPherson Institute for Leadership, Innovation, and Excellence in Teaching McMaster University	Summer 2017
Education 600: Essential Skills in Teaching and Learning (I) MacPherson Institute for Leadership, Innovation, and Excellence in Teaching McMaster University	Spring 2017
Center for Astronomy Education's Tier 1 Teaching Excellence Workshop 227th Meeting of the American Astronomical Society	January 2016
Astronomy Ambassadors (public outreach training) 221st Meeting of the American Astronomical Society	January 2013

STUDENTS MENTORED

Co-advisor: Riccardo Pavesi (Cornell University) Ph.D. student Faculty advisor: Prof. Dominik Riechers	Cornell	Present
Co-advisor: Renato Mazzei (University of Virginia) <i>REU</i> summer student Faculty advisor: Prof. Dominik Riechers	Cornell	Summer 2016
Co-advisor: Sheri Lopez (University of New Mexico) <i>REU</i> summer student Faculty advisor: Prof. Dominik Riechers	Cornell	Summer 2015
Near-peer Mentor: Kirsten Hall (University of North Carolina) <i>REU & Research in Science & Engineering</i> summer student Faculty advisor: Prof. Andrew Baker	Rutgers	Summer 2013
Near-peer Mentor: Whitney Kropat (University of Washington) <i>Research in Science & Engineering</i> summer student Faculty advisor: Prof. Andrew Baker	Rutgers	Summer 2009

PROFESSIONAL SERVICE

Referee , Monthly Notices of the Royal Astronomical Society, Astrophysical Journal Letters		
Committee Member , confidential observatory proposal review	McMaster	3 cycles
External Reviewer , confidential observatory proposal review	McMaster	1 review
Leader/Organizer , ALMA Ambassadors Cycle 5 Proposal Workshop	McMaster	March 2017
Co-organizer , Galaxy Lunch Seminar	Cornell	Fall 2013–Spring 2014
Co-leader , TA Orientation workshop	Rutgers	August 2012
Committee Member , Rutgers South African Large Telescope Time Allocation Committee	Rutgers	July 2011
President , Physics Graduate Student Organization	Rutgers	Fall 2009–Spring 2010
Coordinator , Astronomy Journal Club	Rutgers	Fall 2009–Spring 2010
Student Representative , Graduate Studies and Life Committee	Rutgers	Fall 2008–Spring 2009
Option Mentor , Academics and Research Committee	Caltech	Fall 2006–Spring 2007

PUBLIC OUTREACH

Planetarium Show Host/Designer , W. J. McCallion Planetarium	McMaster	Spring 2017–Present
Volunteer , <i>Girls in Science</i> day camp for grade 10 girls	McMaster	April 2017, 2018
Volunteer , <i>4-H Focus for Teens Astronomy Camp</i>	Cornell	July 2014, 2015, 2016
Workshop Leader/Designer , <i>Expanding Your Horizons</i> day camp for middle school girls	Cornell	April 2015, 2016
Invited Speaker , <i>Rutgers Friends of Astronomy</i>	Cornell	October 2015
Speaker , <i>Career Connections</i> elementary school class	Cornell	March 2015
Volunteer , <i>Museum in the Dark</i> youth outreach event	Cornell	October 2013, 2014
Speaker , <i>Cornell Friends of Astronomy</i>	Cornell	August 2014
Assistant/Speaker , <i>Cosmos</i> viewings with expert commentary	Cornell	Spring 2014
Volunteer , <i>Showtime!</i> at the Ithaca Science Center	Cornell	April 2014
Speaker , <i>Nerd Nite</i> Ithaca	Cornell	October 2013
Assistant , Public observing special events	Rutgers	Summer 2009–Spring 2013
Co-organizer , <i>4-H Science Saturday</i> youth program	Rutgers	April 2012
Volunteer Judge , <i>North Jersey Regional Science Fair</i>	Rutgers	March 2009–2012

ADDITIONAL RESEARCH EXPERIENCE

Summer Undergraduate Research Fellow <i>Determining the Density of AGN at $z \sim 3$</i> Advisor: Prof. Charles Steidel	Caltech	Summer 2005
Summer Undergraduate Research Fellow & Undergraduate Research Assistant <i>Searching for Meteor Streams from Comets</i> Advisor: Prof. William Reach	Caltech	Summer 2004–Spring 2005

SKILLS

Observing & Analysis: Karl G. Jansky Very Large Array, Atacama Large Millimeter/submillimeter Array, Robert C. Byrd Green Bank Telescope (Zspectrometer), IRAM Northern Extended Millimeter Array (formerly the Plateau de Bure Interferometer), Submillimeter Array, Palomar 200" (Large Format Camera), Keck (NIRSPEC)

Programming & Software: IDL, CASA, Python, Fortran, IRAF, Source Extractor, Mathematica, \LaTeX , SM

Web & Graphic Design: HTML, CSS, Adobe Illustrator, Adobe Photoshop, Adobe InDesign