

Kazimierz Sliwa

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Education

McMaster University

PhD, Advisor: Dr. Christine Wilson

Thesis: Molecular Gas Properties in Local Luminous Infrared Galaxies

Hamilton, Canada

2011–2015

McMaster University

MSc, Advisor: Dr. Christine Wilson

Thesis: SMA Observations of the Local Galaxy Merger Arp 299

Hamilton, Canada

2009–2011

University of Toronto

BSc, Advisor: Dr. Dae-Sik Moon

Majored in astrophysics, physics and chemistry

Toronto, Canada

2003–2009

Experience

Research

MPIA

Postdoctoral Researcher

Working on radiative transfer modelling of molecular gas in galaxy mergers and giant molecular cloud analyses in nearby galaxies.

Heidelberg

2015–present

McMaster University

PhD Candidate Researcher

Worked on interferometric data of several luminous infrared galaxies to constrain the physical conditions of the molecular gas as a function of merger stage.

Hamilton

2011–2015

McMaster University

MSc Student Researcher

Worked on interferometric data of the local galaxy merger Arp 299 studying the physical conditions of the molecular gas. Work is published in Sliwa et al. (2012) in The Astrophysical Journal.

Hamilton

2009–2011

University of Toronto

Research Assistant

Worked on optical/near-infrared spectral data from the Palomar observatory of several high mass X-ray binary systems and the supernova remnant Cas A. Supervised by Dr. Dae-sik Moon.

Toronto

2009

University of Toronto

Research Topic Course

Worked on spectral data of a high mass X-ray binary system obtained using the Triple Spec spectrometer from the Palomar observatory, as well as previous spectral data taken with the Spitzer space telescope. Supervised by Dr. Dae-sik Moon.

Toronto

2008–2009

University of Toronto

NSERC Research Assistantship

Toronto

2008

Worked on spectral data of a high mass X-ray binary system obtained from the Keck observatory. Reduced and extracted the spectrum of the system. Identified several hundred spectral lines. Supervised by Dr. Dae-sik Moon.

Publications

Referred:

- 11. **Sliwa, K.**, Wilson, C.D., Aalto, S. and Privon, G.C. , *EXTREME CO ISOTOPIC ABUNDANCES IN THE ULIRG IRAS 13120-5453*, 2017, submitted
- 10. **Sliwa, K.** and Downes, D., *PdBI U/LIRG SURVEY (PULS): DENSE MOLECULAR GAS IN Arp 220 AND NGC 6240*, 2017, submitted
- 9. **Sliwa, K.** , Wilson, C.D., Petitpas, G.R., Matsushita, S., Peck, A.B., Saito, T., Yun, M., *LUMINOUS INFRARED GALAXIES WITH THE SUBMILLIMETER ARRAY V: MOLECULAR GAS IN INTERMEDIATE TO LATE-STAGE MERGERS*, 2017, ApJ, in press
- 8. Jiménez-Donaire, M. J., Cormier, D., Bigiel, F., Leroy, A. K., Gallagher, M., Krumholz, M. R., Usero, A., Hughes, A., Kramer, C., Meier, D., Murphy, E., Pety, J., Schinnerer, E., Schrubba, A., Schuster, K., **Sliwa, K.**, Tomicic, N., *$^{13}\text{CO}/\text{C}^{18}\text{O}$ GRADIENTS ACROSS THE DISKS OF NEARBY SPIRAL GALAXIES*, 2017, ApJL,
- 7. Saito, T., Iono, D., Xu, C. K., **Sliwa, K.**, Ueda, J., Espada, D., Kaneko, H., König, S., Nakanishi, K., Lee, M., Yun, M. S., Aalto, S., Hibbard, J. E., Yamashita, T., Motohara, K., Kawabe, R., *SPATIALLY RESOLVED CO SLED OF THE LUMINOUS MERGER REMNANT NGC 1614 WITH ALMA*, 2017, ApJ, 835, 174
- 6. Privon, G. C., Aalto, S., Falstad, N., Muller, S., González-Alfonso, E., **Sliwa, K.**, Treister, E., Costagliola, F., Armus, L., Evans, A. S., Garcia-Burillo, S., Izumi, T., Sakamoto, K., van der Werf, P., Chu, J. K., *THE DENSE MOLECULAR GAS AND NUCLEAR ACTIVITY IN THE ULIRG IRAS 13120?5453*, 2017, ApJ, 835, 213
- 5. Leroy, A. K., Hughes, A., Schrubba, A., Rosolowsky, E., Blanc, G. A., Bolatto, A. D., Colombo, D., Escala, A., Kramer, C., Kruijssen, J. M. D., Meidt, S., Pety, J., Querejeta, M., Sandstrom, K., Schinnerer, E., **Sliwa, K.**, Usero, A., *A PORTRAIT OF COLD GAS IN GALAXIES AT 60 pc RESOLUTION AND A SIMPLE METHOD TO TEST HYPOTHESES THAT LINK SMALL-SCALE ISM STRUCTURE TO GALAXY-SCALE PROCESSES*, 2016, ApJ, 831, 16
- 4. Querejeta, M., Schinnerer, E., García-Burillo, S., Bigiel, F., Blanc, G. A., Colombo, D., Hughes, A., Kreckel, K., Leroy, A. K., Meidt, S. E., Meier, D. S., Pety, J. and **Sliwa, K.**, *AGN FEEDBACK IN THE NUCLEUS OF M51*, 2016, A&A, 593, 118
- 3. **Sliwa, K.**, Wilson, C. D., Iono, D., Peck, A. and Matsushita, S., *AROUND THE RING WE GO: THE COLD, DENSE RING OF MOLECULAR GAS IN NGC 1614*, 2014, ApJL, 796, L15

- 2. **Sliwa, K.**, Wilson, C.D., Krips, M., Pepitpas, G.R., Iono, D., Juvela, M., Matsushita, S., Peck, A.B., and Yun, M., *LUMINOUS INFRARED GALAXIES WITH THE SUBMILLIMETER ARRAY IV. $^{12}\text{CO } J=6-5$ OBSERVATIONS OF VV 114*, 2013, ApJ, 777, 126
- 1. **Sliwa, K.**, Wilson, C.D., Pepitpas, G.R., Armus, L., Juvela, M., Matsushita, S., Peck, A.B., and Yun, M.S, *LUMINOUS INFRARED GALAXIES WITH THE SUBMILLIMETER ARRAY III. THE KILOPARSEC MOLECULAR CONCENTRATIONS OF ARP 299*, 2012, ApJ, 753, 46

Awards

The A. Boyd McLay Ontario Graduate Scholarship 2014–2015	\$15,000
Student Proposals for Intellectual Community & Engaged Scholarship 2014–2015	\$4,200
Dr. Ronald V. Joyce Ontario Graduate Scholarships in Science 2013–2014	\$15,000
Student Proposals for Intellectual Community & Engaged Scholarship 2013–2014	\$4,000
Queen Elizabeth II Graduate Scholarships in Science & Technology 2012–2013	\$15,000
NSERC Undergraduate Student Research 2008	\$8,200

Conferences, Workshops and Presentations

Havard-Heidelberg Star Formation Workshop Poster: "A Tale of Woe for ^{13}CO in Luminous Infrared Galaxies"	Heidelberg, Germany 2016
Half a Decade of ALMA Talk: "A Tale of Woe for ^{13}CO in Luminous Infrared Galaxies"	Indian Wells, USA 2016
Half a Decade of ALMA Poster: "Cloud Scale View of Spiral Galaxies: First Results from the Nearby Galaxy M74"	Indian Wells, USA 2016
XGal Molecular Gas Workshop Poster+1min: "Resolved Molecular Gas Properties of Local Luminous Infrared Galaxies"	Charlottesville, USA 2016
IAU General Meeting Symposium 315 Poster: "Resolved Molecular Gas Properties of Local Luminous Infrared Galaxies"	Honolulu, USA 2015
CASCA Annual Meeting Talk: "Resolved Molecular Gas Properties of Local Luminous Infrared Galaxies"	Hamilton, Canada 2015
CASCA Annual Meeting Talk: "McMaster's Sidewalk Astronomy: Taking Astronomy to the Streets"	Hamilton, Canada 2015
CASCA Annual Meeting Poster: "Resolved Molecular Gas Properties of Local Luminous Infrared Galaxies"	Hamilton, Canada 2015

AAS 225th Meeting	Seattle, USA
<i>Talk: "Resolved Molecular Gas Properties of Local Luminous Infrared Galaxies"</i>	2015
Hokkaido University Seminar	Sapporo, Japan
<i>Talk: "Resolved Molecular Gas Properties of Local Luminous Infrared Galaxies"</i>	2014
Extragalactic Astrochemistry Workshop	Tokyo, Japan
<i>Participant</i>	2014
Revolution in Astronomy with ALMA	Tokyo, Japan
<i>Poster: "NGC1614: The Ring of Cold, Dense Molecular Gas"</i>	2014
CASCA Annual Meeting	Quebec, Canada
<i>Talk: "Luminous Infrared Galaxies as seen with Modern Interferometers"</i>	2014
Mozilla Software Carpentry Bootcamp	Hamilton, Canada
<i>Participant</i>	2014
Gas and Stars in Galaxies: A Multi-wavelength 3D Perspective	Garching, Germany
<i>Poster: "Luminous Infrared Galaxies with the SMA"</i>	2014
NRAO TUNA Talk	Charlottesville, USA
<i>Talk: "A Look at Luminous Infrared Galaxies with the SMA"</i>	2014
CASCA Annual Meeting	Vancouver, Canada
<i>Poster: "Luminous Infrared Galaxies with the Submillimeter Array"</i>	2013
Star Formation Jamboree	Hamilton, Canada
<i>1 min slide: "Exploring the Starburst of Arp 299"</i>	2013
Joint Astronomy Center Seminar	Hilo, USA
<i>Talk: "Luminous Infrared Galaxies with the SMA"</i>	2012
Galactic Scale Star Formation Conference	Heidelberg, Germany
<i>Poster + 1 min: "Exploring the Starburst of Arp 299"</i>	2012
CASCA Annual Meeting	London, Canada
<i>Poster: "High Resolution Interferometric Observations of the Local Galaxy Merger Arp 299"</i>	2011
McMaster Symposium Day	Hamilton, Canada
<i>Talk: "SMA Observations of the Local LIRG Arp 299"</i>	2010
Twelfth Synthesis Imaging Summer School	Hamilton, Canada
<i>Participant</i>	2010

Successful Observing Proposals

ALMA	
<i>Cycle 4: Project 0921</i>	<i>PI; High Priority</i>
"Stirring the Pot: Giant Molecular Clouds in the Local Galaxy Merger NGC 3256"	
<i>Cycle 4: Project 0777</i>	<i>PI; High Priority</i>
"Nucleosynthesis Enrichment in a Cosmic Yo-Yo"	
<i>Cycle 3: Project 0804</i>	<i>PI; Filler</i>
"The Galaxy Merger Process: Molecular Gas Properties at the Beginning and the End"	

<i>Cycle 3: Project 0714</i>	<i>PI; High Priority</i>
"Stirring the Pot: Giant Molecular Clouds in the Local Galaxy Merger NGC 3256"	
<i>Cycle 3: Project 0287</i>	<i>PI; Filler</i>
"The Almost Forgotten Local Ultra Luminous Infrared Galaxy: IRAS 13120-5453"	
<i>Cycle 2: Project 0379</i>	<i>PI; Filler</i>
"The Forgotten Local Ultra Luminous Infrared Galaxy: IRAS 13120-5453"	
<i>Cycle 2: Project 0469</i>	<i>PI; Filler</i>
"The Warm Molecular Gas of VV 114"	

CARMA

<i>Project c1062</i>	<i>PI; Granted 27.5hrs</i>
"Observations of ^{13}CO J=2-1 in Luminous Infrared Galaxies"	
<i>Project c1060</i>	<i>PI; Granted 19hrs</i>
"Constraining the Physical Conditions of Arp 299"	
<i>Project c0988</i>	<i>PI; Granted 34hrs</i>
"Mapping the Molecular Gas of Luminous Infrared Galaxies"	
<i>Project c0873</i>	<i>PI; Granted 22hrs</i>
"CO Observations of Luminous Infrared Galaxies"	

IRAM 30m

<i>Project 180-12</i>	<i>PI; Granted 36hrs</i>
"Mapping the Molecular Gas in Luminous Infrared Galaxies"	

NOEMA

<i>Project W16BL</i>	<i>PI; Granted 20.2hrs</i>
"In a Luminous Infrared Galaxy Far, Far Away: Observations of ^{13}CO and C^{18}O in UGC 5101"	

JCMT

<i>Project M12BC14</i>	<i>PI; Granted 39hrs</i>
"Mapping CO J=2-1 in Luminous Infrared Galaxies"	
<i>Project M11AC06</i>	<i>PI; Granted 22hrs</i>
"Observations of Arp 299 in CO J=2-1"	

SMA

<i>2016B: Project S035</i>	<i>PI; Granted 10 tracks</i>
"A Cloud-Scale Map of CO J=2-1-to-J=1-0 Line Ratio in M51"	
<i>2012B: Project S029</i>	<i>PI; Granted 8 hrs</i>
"Exploring the Dense Molecular Gas of Arp 299"	

Computer skills

Data Reduction: CASA (advanced), miriad (basic), STARLINK (basic), GILDAS (basic)

Scripting: Python (advanced), IDL (advanced), UNIX (intermediate), IRAF (basic), SQL (basic)

Other: Git (intermediate), HTML (intermediate), CSS (intermediate), LaTeX (advanced)

Extracurricular

Star Formation and ISM in Nearby Galaxies Meeting	Heidelberg, Germany
<i>Organizer</i>	<i>2016–present</i>
Organize two meetings a month to discuss star formation and ISM matters in nearby galaxies.	

- SFNG (now PHANGS) Team Meeting** **Heidelberg, Germany**
Organizer *Dec 2016*
 Organized and ran the SFNG (now called PHANGS) team meeting held at MPIA.
- McMaster's Sidewalk Astronomy** **Hamilton, Canada**
Co-Founder/Organizer *2012–2015*
 Setup weekly public observing events on McMaster's campus. Secured funding to purchase another telescope and other equipment. Over 3000 participants have attended as of April 2015.
- McMaster McCallion Planetarium** **Hamilton, Canada**
Presenter *2010–2015*
 Presented interactive planetarium shows (of my own design) to public and private groups such as school classes, cub scouts and day camps. As of November 2014, 107 shows have been given.
- Let's Talk Science** **Hamilton, Canada**
Volunteer *2010–2015*
 Let's Talk Science is a national organization devoted to improving science literacy by providing science-learning programs to kids. Volunteered to help with the "All Science Challenge Fun House" demonstrating simple science experiments to elementary school kids as they came into the room. Was named the Volunteer of the Month for September 2014.
- Canadian Undergraduate Physics Conference** **Hamilton, Canada**
Judge *Fall 2013*
 Volunteered to judge talks given by undergraduates from all over Canada.
- Science Rendezvous** **Hamilton, Canada**
Volunteer *2013–2015*
 Science Rendezvous is a national day of science. Helped with scientific activities all over the city of Hamilton, Ontario.
- McMaster Venus Transit Public Viewing** **Hamilton, Canada**
Volunteer *June 2012*
 Volunteered to help out with the public viewing of the transit of Venus across the Sun, a twice in a lifetime event, with the departmental 30 cm telescope.
- Departmental Graduate Student Mentor** **Hamilton, Canada**
Mentor *2012–2014*
 Volunteered to mentor an incoming graduate student to the department.
- McMaster Science and Engineering Olympics** **Hamilton, Canada**
Volunteer *2012–2014*
 An event held on the McMaster campus that hosts various science and engineering activities that high school kids take part in and compete against other schools. Volunteered to help out with the "Physics Paper Triathlon" where I was in charge of the bridge building competition.