

PROF. CARA BATTERSBY

CONTACT INFORMATION	University of Connecticut, Dept. of Physics 2152 Hillside Road, Unit 3046 Storrs, CT 06269-3046	Phone: (860) 486-3988 E-mail: cara.battersby@uconn.edu https://physics.uconn.edu/cara-battersby/
RESEARCH INTERESTS	1) Star formation in extreme environments, 2) the Central Molecular Zone of the Milky Way, 3) Galactic Structure, 4) the formation of massive stars and star clusters.	
PROFESSIONAL PREPARATION	Assistant Professor University of Connecticut (on research leave AY16/17)	August 2016 - present
	Research Associate Smithsonian Astrophysical Observatory	September 2017 - present
	National Science Foundation (NSF) Postdoctoral Fellow Harvard-Smithsonian Center for Astrophysics	August 2016 - July 2017
	Submillimeter Array (SMA) Postdoctoral Fellow Harvard-Smithsonian Center for Astrophysics	Sept. 2013 - July 2016
	Ph.D. Astrophysics, University of Colorado, Boulder, CO, Adviser: John Bally <i>"The Structure, Kinematics, and Evolution of Massive Star and Cluster Forming Regions"</i>	2013
	M.A. Astronomy, Boston University, Adviser: Jim Jackson	2008
	B.S. Physics & Astronomy, University of Massachusetts Amherst <i>summa cum laude, Advisers: Min S. Yun & Grant Wilson</i>	2006
HONORS, GRANTS, AND AWARDS	UConn: <ul style="list-style-type: none">• <i>Shortlisted (top 5 of candidates worldwide) for the Nature Research Awards for Inspiring Science</i> 2018• <i>PI: National Science Foundation Astronomy and Astrophysics Grant, "3-D CMZ: Unveiling the Structure of our Galaxy's Central Molecular Zone" (\$390k)</i> 2018• <i>Provost's Letter of Recognition for Teaching Excellence, all 5.0's for PHYS2701</i> 2017• <i>PI: Templeton Foundation Grant, "BiteScis: K12 Research Brief Engagement Pilot" (\$215k)</i> 2017• <i>UConn Internal Grants (\$37k total): (NFIP 2017 \$1k, Co-I: Provost's Open Educational Resources Award 2017 \$10k, Co-I: Provost's Large Course Redesign Award 2017 \$26k).</i>• <i>Appointed by NASA: Science & Technology Definition Team, Origins Space Telescope</i> 2016 Harvard-Smithsonian Center for Astrophysics: <ul style="list-style-type: none">• <i>NSF Astronomy & Astrophysics Postdoctoral Fellowship (\$267,000)</i> 2016• <i>Templeton Grant, Exploratory grant for the BiteScis outreach program (\$25,000)</i> 2015• <i>AAS International Travel Grant, for the International Astronomical Union (\$1,000)</i> 2015• <i>SMA Postdoctoral Fellowship, Harvard-Smithsonian Center for Astrophysics</i> 2013 University of Colorado & Boston University: <ul style="list-style-type: none">• <i>Chance Irick Cooke Fellowship, to one exceptional graduate student each year (\$3,000)</i> 2012• <i>Honorific Fellowship, awarded to select CU-Boulder graduate students (\$2,000)</i> 2009 & 2010• <i>Astronomy Teaching Fellow of the Year Award, Boston University</i> 2008• <i>NSF Graduate Research Fellowship</i> 2007• <i>Presidential Fellowship, to one exceptional incoming graduate student, Boston University</i> 2006	

PUBLICATIONS C. Battersby has an h-index of 27, is an author on 50 publications, with a total citation count of 2,910 (computed September 2018 from Google Scholar). Complete publication list is on the following pages.

SELECTED PRESS **Outreach in the News:**

- 2017 Hartford Courant [UConn Eclipse Viewing; Partial Eclipse, Complete Awe for CT](#)
- 2017 Patch.com [Eclipse Viewing Tips; Eclipse Event; It was Eclipse and Ice Cream](#)
- 2017 Stamford Advocate [Sky Gazers Ready for Solar Eclipse](#)

Research in the News:

- 2018 Nature Research Awards for Inspiring Science
- 2018 Forbes [NASA's Next Flagship Mission May Be a Crushing Disappointment for Astrophysics](#)
- 2016 phys.org [The Milky Way's central molecular zone](#)
- 2016 SciTechDaily [Astronomers Take A Closer Look at the Milky Way's Central Molecular Zone](#)
- 2016 Astronomy Now [Unravelling the Milky Way's Central Molecular Zone](#)
- 2016 United Press International [New study details skeleton of the Milky Way galaxy](#)
- 2015 astrobit.es [The Skeleton of the Milky Way](#)
- 2015 AAS Nova [Companions for "Nessie" in the Milky Way's Skeleton](#)
- 2015 Sky & Telescope [Making Massive Stars](#)
- 2015 space.com [Milky Way 'Bones Could Reveal Secrets About Our Galaxy](#)
- 2014 Sky & Telescope [Cooking up High-Mass Stars](#)

SELECTED SUCCESSFUL OBSERVING PROPOSALS	Over 100 hours as Co-I on the Atacama Large Millimeter Array (ALMA)	2013-2018
	Over 30 hours as Co-I on the Very Large Array (VLA)	2013-2018
	PI, 550 hours , Submillimeter Array (SMA)	2014-2017
	<i>"CMZoom: The SMA Legacy Survey of the Central Molecular Zone"</i>	
	PI, 3 hours , Atacama Large Millimeter Array (ALMA)	2016
	<i>"Testing a New Mode for Cloud Collapse in Galaxy Centers"</i>	
	PI, 60 hours , IRAM 30-m	2015
	<i>"Mapping the Bones of the Milky Way"</i>	
	PI, 13 hours , Very Large Array (VLA)	2015
	<i>"The Importance of Filamentary Accretion Flows in Forming Massive Star Clusters"</i>	
PI, 45 hours , Submillimeter Array (SMA)	2014	
<i>"Hidden Gems: Uncovering the Nature of Massive Starless Clumps"</i>		
Co-I, 200 hours , Atacama Pathfinder Experiment (APEX)	2014	
<i>"H₂CO Thermometry of the CMZ to understand its low star formation rate"</i>		
PI, 3 hours , Green Bank Telescope (GBT)	2014	
<i>"The Structure and Kinematics of our Nearest Massive Proto-Cluster"</i>		

SELECTED SCIENTIFIC PRESENTATIONS **Invited Review Talks** (5 since 2013):

- Oxford *Origins Space Telescope Meeting*, Oxford, UK (09/05/2018), EWASS *Star formation at the centre of the Galaxy* Prague (06/26/2017), CIERA Fellows at the Frontiers at Northwestern (09/01/2016), Keynote speaker for *Mass Assembly from Clouds to Clusters* at the Sixten Center for Astrophysics, Italy (07/07/2014), BASH Symposium at the University of Texas Austin (10/07/2013).

Invited Conference Presentations and Colloquia (31 since 2013):

- **2018:** Brown University Astronomy Seminar (planned: 11/29/2018), MIT Astrophysics Colloquium (planned: 11/06/2018), University of Arizona Astrophysics Colloquium (planned: 10/4/2018), Harvard-Smithsonian Center for Astrophysics Galaxies & Cosmology Seminar (03/27/2018), Oxford Workshop on Giant Molecular Clouds Oxford, UK (03/12/2018), Caltech Astrophysics Colloquium (03/07/2018), Wesleyan Astrophysics Colloquium (02/28/2018), SMA Special Session at the American Astronomical Society meeting (01/08/2018).
- **2017:** Union of Radio Science General Assembly and Scientific Symposium (08/22/2017), Trinity College Physics Seminar (03/31/2017), National Radio Astronomy Observatory Charlottesville Astronomy Colloquium (02/09/2017), Far-IR Science Interest Group Webinar (02/02/2017),
- **2016:** National Radio Astronomy Observatory Socorro Astronomy Colloquium (12/02/2016), Harvard-Heidelberg Workshop on Star Formation Heidelberg, Germany (11/08/2016), SMA Science in the Next Decade Taipei, Taiwan (10/27/2016), University of Texas Austin Astronomy Colloquium (09/14/2016), Kavli Institute for Theoretical Physics Santa Barbara *The Cold Universe* (04/25/2016), DRAO Astronomy Colloquium Penticton, BC (03/01/2016), NRC Herzberg Institute for Astronomy Colloquium Victoria, BC (02/29/2016), University of Connecticut Physics Seminar (02/11/2016), University of California, Berkeley Astronomy Colloquium (02/04/2016), Amherst College Physics and Astronomy Colloquium (01/26/2016),
- **2015:** Bates College Physics and Astronomy Colloquium (12/4/2015), University of Arizona Tucson FLASH and Origins Talks (11/13/2015), UMass Amherst Astronomy Colloquium (11/5/2015), IAU 'Scale-Free Processes' Focus Meeting Honolulu (08/13/2015), University of Florida, *Star & Planet Formation Workshop* (03/12/2015), American Museum of Natural History Colloquium, (02/05/2015).
- **2014:** National Radio Astronomy Observatory Filaments Workshop Charlottesville (10/10/2014), Boston University Astrophysics Seminar (10/14/2014), MIT Haystack Observatory Colloquium (07/24/2014), Yale University Seminar (04/07/2014).
- **2013:** University of Florida *ASTROWIN* (02/15/2013), University of Florida Seminar, (02/12/2013).

Invited Public Talks (7 since 2016):

- SkyScrapers Amateur Astronomy Club, RI (05/11/2018), Keene Public Library in New Hampshire (03/09/2017), Sturbridge Rotary Club Massachusetts (01/30/2017), Arlington Retired Men's Club Massachusetts (10/12/2016), Aldrich Astronomical Society Massachusetts (10/08/2016), Astronomy on Tap in Cairns, Australia, (07/20/2016), Center for Astrophysics Observatory Nights, Posted online: [The Wild West of Star Formation](#) (04/21/2016).

Students Advised and Co-Advised:

Summary: I have advised or co-advised 21 research students since 2013, including 5 graduate students, 9 UConn undergraduate students, and one high school student.

● **Five Graduate Students:**

- H. Perry Hatchfield - UConn Graduate Student - "*Star Formation in the Central Molecular Zone*" (Summer 2017 - present)
- Mark Graham - Southampton Master's Student at Harvard - "*Extreme Star Formation in the Center of Our Galaxy*" (2014 - 2015)
- Catherine Zucker - Harvard Graduate Student (primary adviser Alyssa Goodman) - "*Milky Way Bones*" (2014 - present)
- Brian Svoboda - Graduate Student at University of Arizona (primary adviser Yancy L. Shirley) - "*The Nature of Starless Clumps*" (2013 - 2018)
- Nalin Vutisalchavakul - University of Texas, Austin (primary adviser: Neal J. Evans II) - "*The*

Star Formation Relation for Regions in the Galactic Plane: The Effect of Spatial Resolution"
(2013)

- **Nine UConn Undergraduate Students:** Aisha Massiah (2018), Joseph Giangregorio (Fall 2017 - present), Harrison Hall (Spring 2018 - present), Brian Zelickovics (Spring 2018), Anthony (Josh) Machado (Spring 2018 - present), Alexa Abul (Fall 2017 - present), Christopher Annuzzi (Fall 2017 - present), Cooper Biancur (Fall 2017 - Spring 2018), Stephanie Santillo (Fall 2017).
 - **Seven other Undergraduate and High School Students:** Elizabeth Gutierrez - Harvard Banner Summer Student (co-adviser: Meredith MacGregor) (2017), Emma Kleiner - Nyack High School Student (2016-2018), Irene Vargas-Salzar - Harvard Summer REU student (2016), Dennis Lee - Harvard undergraduate student (2015 - 2016), Jimmy Castaño - Harvard undergraduate student (2015 - 2016), Liz Gehret - Harvard Summer REU student (2015 - 2016), AJ Cohn - Harvard undergraduate student (2015 - 2017).
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TEACHING

UConn:

Developed and Instructed a New Interactive Astrophysics Course: PHYS 2701: The Foundations of Modern Astrophysics, University of Connecticut, Storrs, CT.

- Taught Fall 2017. *Received the Provost's Letter of Recognition for Teaching Excellence, SET scores of 5.0 for instructor and 5.0 for course*

Previous:

Graduate Teacher Training Program (2008-2012)

Completed > 30 hours of workshop training on teaching practices, University of Colorado, Boulder

Co-Instructor: ASTR 6000: Graduate Seminar on the Interstellar Medium, Fall 2011
University of Colorado, Boulder, CO

Instructor of Record: Co-taught ASTR 1120: Stars & Galaxies, Summer 2011
University of Colorado, Boulder, CO

Teaching Assistant: ASTR 101: The Solar System, Spring 2008, Boston University

Teaching Assistant: ASTR 117: Cosmic Evolution, Fall 2007, Boston University

Teaching Assistant: ASTR 335: Modern Astrophysics, Fall 2005, UMass Amherst

SELECTED
SERVICE

UConn Service:

- **Advising:**
 - UConn Physics Club Faculty Advisor (2018 - present)
 - UConn Astronomy Association Faculty Advisor (2018 - present)
 - Research Mentor to 9 UConn undergraduate students and 1 graduate student. Wrote over 100 reference letters for 14 students, including 8 UConn undergraduate and 1 UConn graduate students (2017-present)
 - Organizer for Graduate Student Fellowship Information Presentation (Fall 2017)
- **Committees:**
 - Furniture Committee Member (2018 - present)
 - University Scholar Program Committee Member for Emmerson Dang (2017-present)
 - Oral Preliminary Exam Committee Member for Yasaman Homayouni (05/19/2017)
- **Development of UConn Astrophysics Program:**
 - Lead Development of Interactive New Astrophysics Course PHYS 2701 (2017)
 - Co-Creation of 4 new Astrophysics Courses, PHYS 2701, 2702, 4710, and 4720, along with Profs. Whitaker and Trump (2016-2017)

- Co-Development of Astrophysics Minor, along with Profs. Whitaker and Trump (2017)

Service to Scientific Community:

• **Science Organizing Committees:**

- Olympian Symposium *Gas and Stars from milli- to mega-parsecs*, Greece in 2018,
- Chair of the Science and Local Organizing Committees for the [Harvard-Heidelberg Workshop on Star Formation](#) in 2015.

• **Proposal Review Panels:**

- NASA Hubble Postdoctoral Fellowship Program (2018)
- Smithsonian Astrophysics Observatory Submillimeter Array (2015-2017)
- NASA Astrophysics Data Analysis Program (2015)

• **Referee:** Astrophysical Journal (*ApJ*), Astronomy & Astrophysics (*A&A*)

• **NASA-appointed member of the Science & Technology Definition Team (STDT):** [Origins Space Telescope \(OST\)](#) (03/11/2016 - present)

• **NASA OST Group Leader** for:

- The Milky Way, ISM, and Local Galaxy Science Group (2016 - present)
- The OST Advocacy Group (2017 - present)

• **Prior Professional Service:** Lead Organizer of the CfA Seminar Series (2015-2016) and for the CU-Boulder Star Formation Journal Club (2012-2013), Session Chair: *Multi-Scale Star Formation* (2017); *AAS Star Formation* (2016); *'Scale-Free Processes'* (2015); *AAS Star Formation III* (2015); *Mass Assembly from Clouds to Clusters* (2014), University of Colorado Boulder Graduate Admissions Committee (2010)

SELECTED
OUTREACH
ACTIVITIES

Co-Founder and Leader of [BiteScis](#): A program that brings together science graduate students with K-12 teachers to develop lesson plans to bring modern science research into the K-12 classroom. Lesson plans are freely available only at [bitescis.org](#). (2014-present)

Co-Founder and Leader of [CU-STARS](#): Founded a new program at CU-Boulder to retain undergraduate students from traditionally underrepresented backgrounds in STEM during their first year. Organized public talk series, outreach events in underserved communities, and more. Estimated to have impacted 50 undergraduate and hundreds of high school students. The program is in its 6th year and still growing (Leader: 2010-2013)

Additional Highlighted Outreach Activities:

- Led Astronomy Activity at Hartford Schools Physics Open House. (April 2018)
- Co-organized solar eclipse viewing party. (August 2017)
- Science Advisor for the Play "The Women who Mapped the Stars" by Joyce Van Dyke, premiering at the Central Square Theater. (07/01/2016 - 09/01/2017)
- [ComSciCon](#) workshop organizer (2015-2017)
- [WorldWide Telescope Ambassador](#) (2014-2016)
- Leader of the Colorado Women in Astronomy Group: Organized the first-ever women in astronomy retreat and department public forum, in addition to leading monthly meetings and hosting guest speakers. (2010-2012)

Other Outreach: Observatory Open Houses and Astronomy Day (CU-Boulder, 2008-2013), Cool Girls Science & Art Club (2012), Boulder Safehouse Children's Volunteer (2009-2013), Science Fair Judge (2009, 2011), Boston Museum of Science Discovery Center Interpreter (2007).

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PUBLICATIONS

Summary: I have an h-index of 27, am an author on 50 publications, and my total citation count is 2,910 (computed September 2018 from Google Scholar). My complete publication list is below.

First and Second Author or Advised Student Lead

- [1] Zucker, C., **Cara Battersby**, & Goodman, A., *Physical properties of large-scale galactic filaments*, September. 2018, ApJ, 864, 153
- [2] **Battersby, Cara**, Armus, L., Bergin, E., Kataria, T., Meixner, M., Pope, A., Stevenson, K. B., Cooray, A., Leisawitz, D., Scott, D., Bauer, J., Bradford, C. M., Ennico, K., Fortney, J. J., Kaltenecker, L., Melnick, G. J., Milam, S. N., Narayanan, D., Padgett, D., Pontoppidan, K., Roellig, T., Sandstrom, K., Su, K. Y. L., Vieira, J., Wright, E., Zmuidzinas, J., Staguhn, J., Sheth, K., Benford, D., Mamajek, E. E., Neff, S. G., Carey, S., Burgarella, D., De Beck, E., Gerin, M., Helmich, F. P., Moseley, S. H., Sakon, I., & Wiedner, M. C., *The Origins Space Telescope*, August. 2018, Nature Astronomy, 2, 596 [\[ADS\]](#)
- [3] **Battersby, C.**, Bally, J., & Svoboda, B., *The Lifetimes of Phases in High-mass Star-forming Regions*, February. 2017, ApJ, 835, 263 [\[ADS\]](#)
- [4] Mills, E. A. C. & **Battersby, C.**, *Origins of Scatter in the Relationship between HCN 1-0 and Dense Gas Mass in the Galactic Center*, January. 2017, ApJ, 835, 76 [\[ADS\]](#)
- [5] Svoboda, B. E., Shirley, Y. L., **Battersby, C.**, Rosolowsky, E. W., Ginsburg, A. G., Ellsworth-Bowers, T. P., Pestalozzi, M. R., Dunham, M. K., Evans, II, N. J., Bally, J., & Glenn, J., *The Bolocam Galactic Plane Survey. XIV. Physical Properties of Massive Starless and Star-forming Clumps*, May. 2016, ApJ, 822, 59 [\[ADS\]](#)
- [6] Zucker, C. & **Battersby, C.** and Goodman, A., *The Skeleton of the Milky Way*, December. 2015, ApJ, 815, 23 [\[ADS\]](#)
- [7] Vutisalchavakul, N., Evans, II, N. J., & **Battersby, C.**, *The Star-formation Relation for Regions in the Galactic Plane: The Effect of Spatial Resolution*, December. 2014, ApJ, 797, 77 [\[ADS\]](#)
- [8] **Battersby, C.**, Ginsburg, A., Bally, J., Longmore, S., Dunham, M., & Darling, J., *The Onset of Massive Star Formation: The Evolution of Temperature and Density Structure in an Infrared Dark Cloud*, June. 2014, ApJ, 787, 113 [\[ADS\]](#)
- [9] **Battersby, C.**, Bally, J., Dunham, M., Ginsburg, A., Longmore, S., & Darling, J., *The Comparison of Physical Properties Derived from Gas and Dust in a Massive Star-forming Region*, May. 2014, ApJ, 786, 116 [\[ADS\]](#)
- [10] **Battersby, C. D.** 2013, in *The Formation of Massive Stars and Star Clusters in the Milky Way* New Horizons in Astronomy (BASH 2013) - Invited Review Paper [\[ADS\]](#)
- [11] **Battersby, C.**, Bally, J., Ginsburg, A., Bernard, J.-P., Brunt, C., Fuller, G. A., Martin, P., Molinari, S., Mottram, J., Peretto, N., Testi, L., & Thompson, M. A., *Characterizing precursors to stellar clusters with Herschel*, November. 2011, A&A, 535, A128 [\[ADS\]](#)
- [12] **Battersby, C.**, Bally, J., Jackson, J. M., Ginsburg, A., Shirley, Y. L., Schlingman, W., & Glenn, J., *An Infrared Through Radio Study of the Properties and Evolution of IRDC Clumps*, September. 2010, ApJ, 721, 222 [\[ADS\]](#)

Other Collaborative Publications

- [1] Ginsburg, A., Bally, J., Barnes, A., Bastian, N., **Battersby**, C., Beuther, H., Brogan, C., Contreras, Y., Corby, J., Darling, J., De Pree, C., Galván-Madrid, R., Garay, G., Henshaw, J., Hunter, T., Kruijssen, J. M. D., Longmore, S., Lu, X., Meng, F., Mills, E. A. C., Ott, J., Pineda, J. E., Sánchez-Monge, Á., Schilke, P., Schmiedeke, A., Walker, D., & Wilner, D., *Distributed Star Formation throughout the Galactic Center Cloud Sgr B2*, February. 2018, ApJ, 853, 171 [\[ADS\]](#)
- [2] Walker, D. L., Longmore, S. N., Zhang, Q., **Battersby**, C., Keto, E., Kruijssen, J. M. D., Ginsburg, A., Lu, X., Henshaw, J. D., Kauffmann, J., Pillai, T., Mills, E. A. C., Walsh, A. J., Bally, J., Ho, L. C., Immer, K., & Johnston, K. G., *Star formation in a high-pressure environment: an SMA view of the Galactic Centre dust ridge*, February. 2018, MNRAS, 474, 2373 [\[ADS\]](#)
- [3] Barnes, A. T., Longmore, S. N., **Battersby**, C., Bally, J., Kruijssen, J. M. D., Henshaw, J. D., & Walker, D. L., *Star formation rates and efficiencies in the Galactic Centre*, August. 2017, MNRAS, 469, 2263 [\[ADS\]](#)
- [4] Lu, X., Zhang, Q., Kauffmann, J., Pillai, T., Longmore, S. N., Kruijssen, J. M. D., **Battersby**, C., Liu, H. B., Ginsburg, A., Mills, E. A. C., Zhang, Z.-Y., & Gu, Q., *The Molecular Gas Environment in the 20 km s⁻¹ Cloud in the Central Molecular Zone*, April. 2017, ApJ, 839, 1 [\[ADS\]](#)
- [5] Ginsburg, A., Goss, W. M., Goddi, C., Galván-Madrid, R., Dale, J. E., Bally, J., **Battersby**, C. D., Youngblood, A., Sankrit, R., Smith, R., Darling, J., Kruijssen, J. M. D., & Liu, H. B., *Toward gas exhaustion in the W51 high-mass protoclusters*, October. 2016, A&A, 595, A27 [\[ADS\]](#)
- [6] Meixner, M., Cooray, A., Carter, R., DiPirro, M., Flores, A., Leisawitz, D., Armus, L., **Battersby**, C., Bergin, E., Bradford, C. M., Ennico, K., Melnick, G. J., Milam, S., Narayanan, D., Pontoppidan, K., Pope, A., Roellig, T., Sandstrom, K., Su, K. Y. L., Vieira, J., Wright, E., Zmuidzinas, J., Alato, S., Carey, S., Gerin, M., Helmich, F., Menten, K., Scott, D., Sakon, I., & Vavrek, R. 2016, in *Space Telescopes and Instrumentation 2016: Optical, Infrared, and Millimeter Wave*, Vol. 9904, 99040K [\[ADS\]](#)
- [7] Henshaw, J. D., Longmore, S. N., Kruijssen, J. M. D., Davies, B., Bally, J., Barnes, A., **Battersby**, C., Burton, M., Cunningham, M. R., Dale, J. E., Ginsburg, A., Immer, K., Jones, P. A., Kendrew, S., Mills, E. A. C., Molinari, S., Moore, T. J. T., Ott, J., Pillai, T., Rathborne, J., Schilke, P., Schmiedeke, A., Testi, L., Walker, D., Walsh, A., & Zhang, Q., *Molecular gas kinematics within the central 250 pc of the Milky Way*, April. 2016, MNRAS, 457, 2675 [\[ADS\]](#)
- [8] Ginsburg, A., Henkel, C., Ao, Y., Riquelme, D., Kauffmann, J., Pillai, T., Mills, E. A. C., Requena-Torres, M. A., Immer, K., Testi, L., Ott, J., Bally, J., **Battersby**, C., Darling, J., Aalto, S., Stanke, T., Kendrew, S., Kruijssen, J. M. D., Longmore, S., Dale, J., Guesten, R., & Menten, K. M., *Dense gas in the Galactic central molecular zone is warm and heated by turbulence*, February. 2016, A&A, 586, A50 [\[ADS\]](#)
- [9] Ginsburg, A., Walsh, A., Henkel, C., Jones, P. A., Cunningham, M., Kauffmann, J., Pillai, T., Mills, E. A. C., Ott, J., Kruijssen, J. M. D., Menten, K. M., **Battersby**, C., Rathborne, J., Contreras, Y., Longmore, S., Walker, D., Dawson, J., & Lopez, J. A. P., *High-mass star-forming cloud G0.38+0.04 in the Galactic center dust ridge contains H₂CO and SiO masers*, December. 2015, A&A, 584, L7 [\[ADS\]](#)
- [10] Lu, X., Zhang, Q., Kauffmann, J., Pillai, T., Longmore, S. N., Kruijssen, J. M. D., **Battersby**, C., & Gu, Q., *Deeply Embedded Protostellar Population in the 20 km s⁻¹ Cloud of the Central Molecular Zone*, December. 2015, ApJ, 814, L18 [\[ADS\]](#)
- [11] Ginsburg, A., Henkel, C., Ao, Y., Riquelme, D., Kauffmann, J., Pillai, T., Mills, E. A. C., Requena-Torres, M. A., Immer, K., Testi, L., Ott, J., Bally, J., **Battersby**, C., Darling, J., Aalto, S., Stanke, T., Kendrew, S., Kruijssen, J. M. D., Longmore, S., Dale, J., Guesten, R., & Menten, K. M., *Dense gas in the Galactic central molecular zone is warm and heated by turbulence*, September. 2015, accepted to A&A [\[ADS\]](#)
- [12] Ellsworth-Bowers, T. P., Glenn, J., Riley, A., Rosolowsky, E., Ginsburg, A., Evans, II, N. J., Bally, J., **Battersby**, C., Shirley, Y. L., & Merello, M., *The Bolocam Galactic Plane Survey. XIII. Physical Properties and Mass Functions of Dense Molecular Cloud Structures*, June. 2015, ApJ, 805, 157 [\[ADS\]](#)

- [13] Merello, M., Evans, II, N. J., Shirley, Y. L., Rosolowsky, E., Ginsburg, A., Bally, J., **Battersby, C.**, & Dunham, M. M., *The Bolocam Galactic Plane Survey. XI. Temperatures and Substructure of Galactic Clumps Based On 350 μ M Observations*, May. 2015, ApJS, 218, 1 [ADS]
- [14] Ellsworth-Bowers, T. P., Rosolowsky, E., Glenn, J., Ginsburg, A., Evans, II, N. J., **Battersby, C.**, Shirley, Y. L., & Svoboda, B., *The Bolocam Galactic Plane Survey. XII. Distance Catalog Expansion Using Kinematic Isolation of Dense Molecular Cloud Structures with $^{13}\text{CO}(1-0)$* , January. 2015, ApJ, 799, 29 [ADS]
- [15] Ginsburg, A., Bally, J., **Battersby, C.**, Youngblood, A., Darling, J., Rosolowsky, E., Arce, H., & Lebrón Santos, M. E., *The dense gas mass fraction in the W51 cloud and its protoclusters*, January. 2015, A&A, 573, A106 [ADS]
- [16] Shirley, Y. L., Ellsworth-Bowers, T. P., Svoboda, B., Schlingman, W. M., Ginsburg, A., Rosolowsky, E., Gerner, T., Mairs, S., **Battersby, C.**, Stringfellow, G., Dunham, M. K., Glenn, J., & Bally, J., *The Bolocam Galactic Plane Survey. X. A Complete Spectroscopic Catalog of Dense Molecular Gas Observed toward 1.1 mm Dust Continuum Sources with $7.5 \leq l \leq 194^\circ$* , November. 2013, ApJS, 209, 2 [ADS]
- [17] Ginsburg, A., Glenn, J., Rosolowsky, E., Ellsworth-Bowers, T. P., **Battersby, C.**, Dunham, M., Merello, M., Shirley, Y., Bally, J., Evans, II, N. J., Stringfellow, G., & Aguirre, J., *The Bolocam Galactic Plane Survey. IX. Data Release 2 and Outer Galaxy Extension*, October. 2013, ApJS, 208, 14 [ADS]
- [18] Kendrew, S., Ginsburg, A., Johnston, K., Beuther, H., Bally, J., Cyganowski, C. J., & **Battersby, C.**, *Early-stage Massive Star Formation near the Galactic Center: Sgr C*, October. 2013, ApJ, 775, L50 [ADS]
- [19] Ellsworth-Bowers, T. P., Glenn, J., Rosolowsky, E., Mairs, S., Evans, II, N. J., **Battersby, C.**, Ginsburg, A., Shirley, Y. L., & Bally, J., *The Bolocam Galactic Plane Survey. VIII. A Mid-infrared Kinematic Distance Discrimination Method*, June. 2013, ApJ, 770, 39 [ADS]
- [20] Longmore, S. N., Kruijssen, J. M. D., Bally, J., Ott, J., Testi, L., Rathborne, J., Bastian, N., Bressert, E., Molinari, S., **Battersby, C.**, & Walsh, A. J., *Candidate super star cluster progenitor gas clouds possibly triggered by close passage to Sgr A**, June. 2013, MNRAS, 433, L15 [ADS]
- [21] Longmore, S. N., Bally, J., Testi, L., Purcell, C. R., Walsh, A. J., Bressert, E., Pestalozzi, M., Molinari, S., Ott, J., Cortese, L., **Battersby, C.**, Murray, N., Lee, E., Kruijssen, J. M. D., Schisano, E., & Elia, D., *Variations in the Galactic star formation rate and density thresholds for star formation*, February. 2013, MNRAS, 429, 987 [ADS]
- [22] Bressert, E., Ginsburg, A., Bally, J., **Battersby, C.**, Longmore, S., & Testi, L., *How to Find Young Massive Cluster Progenitors*, October. 2012, ApJ, 758, L28 [ADS]
- [23] Ginsburg, A., Bressert, E., Bally, J., & **Battersby, C.**, *There are No Starless Massive Proto-clusters in the First Quadrant of the Galaxy*, October. 2012, ApJ, 758, L29 [ADS]
- [24] Wilcock, L. A., Ward-Thompson, D., Kirk, J. M., Stamatellos, D., Whitworth, A., **Battersby, C.**, Elia, D., Fuller, G. A., DiGiorgio, A., Griffin, M. J., Molinari, S., Martin, P., Mottram, J. C., Peretto, N., Pestalozzi, M., Schisano, E., Smith, H. A., & Thompson, M. A., *Isolated starless cores in infrared dark clouds in the Hi-GAL survey*, July. 2012, MNRAS, 424, 716 [ADS]
- [25] Longmore, S. N., Rathborne, J., Bastian, N., Alves, J., Ascenso, J., Bally, J., Testi, L., Longmore, A., **Battersby, C.**, Bressert, E., Purcell, C., Walsh, A., Jackson, J., Foster, J., Molinari, S., Meingast, S., Amorim, A., Lima, J., Marques, R., Moitinho, A., Pinhao, J., Rebordao, J., & Santos, F. D., *G0.253 + 0.016: A Molecular Cloud Progenitor of an Arches-like Cluster*, February. 2012, ApJ, 746, 117 [ADS]
- [26] Ginsburg, A., Darling, J., **Battersby, C.**, Zeiger, B., & Bally, J., *Galactic H_2CO Densitometry. I. Pilot Survey of Ultracompact H II Regions and Methodology*, August. 2011, ApJ, 736, 149 [ADS]
- [27] Schlingman, W. M., Shirley, Y. L., Schenk, D. E., Rosolowsky, E., Bally, J., **Battersby, C.**, Dunham, M. K., Ellsworth-Bowers, T. P., Evans, II, N. J., Ginsburg, A., & Stringfellow, G., *The Bolocam Galactic Plane Survey. V. HCO^+ and N_2H^+ Spectroscopy of 1.1 mm Dust Continuum Sources*, August. 2011, ApJS, 195, 14 [ADS]

- [28] Molinari, S., Bally, J., Noriega-Crespo, A., Compiègne, M., Bernard, J. P., Paradis, D., Martin, P., Testi, L., Barlow, M., Moore, T., Plume, R., Swinyard, B., Zavagno, A., Calzoletti, L., Di Giorgio, A. M., Elia, D., Faustini, F., Natoli, P., Pestalozzi, M., Pezzuto, S., Piacentini, F., Polenta, G., Polychroni, D., Schisano, E., Traficante, A., Veneziani, M., **Battersby, C.**, Burton, M., Carey, S., Fukui, Y., Li, J. Z., Lord, S. D., Morgan, L., Motte, F., Schuller, F., Stringfellow, G. S., Tan, J. C., Thompson, M. A., Ward-Thompson, D., White, G., & Umana, G., *A 100 pc Elliptical and Twisted Ring of Cold and Dense Molecular Clouds Revealed by Herschel Around the Galactic Center*, July. 2011, ApJ, 735, L33 [\[ADS\]](#)
- [29] Wilcock, L. A., Kirk, J. M., Stamatellos, D., Ward-Thompson, D., Whitworth, A., **Battersby, C.**, Brunt, C., Fuller, G. A., Griffin, M., Molinari, S., Martin, P., Mottram, J. C., Peretto, N., Plume, R., Smith, H. A., & Thompson, M. A., *The initial conditions of high-mass star formation: radiative transfer models of IRDCs seen in the Herschel Hi-GAL survey*, February. 2011, A&A, 526, A159 [\[ADS\]](#)
- [30] Aguirre, J. E., Ginsburg, A. G., Dunham, M. K., Drosback, M. M., Bally, J., **Battersby, C.**, Bradley, E. T., Cyganowski, C., Dowell, D., Evans, II, N. J., Glenn, J., Harvey, P., Rosolowsky, E., Stringfellow, G. S., Walawender, J., & Williams, J. P., *The Bolocam Galactic Plane Survey: Survey Description and Data Reduction*, January. 2011, ApJS, 192, 4 [\[ADS\]](#)
- [31] Bally, J., Aguirre, J., **Battersby, C.**, Bradley, E. T., Cyganowski, C., Dowell, D., Drosback, M., Dunham, M. K., Evans, II, N. J., Ginsburg, A., Glenn, J., Harvey, P., Mills, E., Merello, M., Rosolowsky, E., Schlingman, W., Shirley, Y. L., Stringfellow, G. S., Walawender, J., & Williams, J., *The Bolocam Galactic Plane Survey: $\lambda = 1.1$ and 0.35 mm Dust Continuum Emission in the Galactic Center Region*, September. 2010, ApJ, 721, 137 [\[ADS\]](#)
- [32] Bally, J., Anderson, L. D., **Battersby, C.**, Calzoletti, L., Digiorgio, A. M., Faustini, F., Ginsburg, A., Li, J. Z., Nguyen-Luong, Q., Molinari, S., Motte, F., Pestalozzi, M., Plume, R., Rodon, J., Schilke, P., Schlingman, W., Schneider-Bontemps, N., Shirley, Y., Stringfellow, G. S., Testi, L., Traficante, A., Veneziani, M., & Zavagno, A., *Herschel observations of the W43 “mini-starburst”*, July. 2010, A&A, 518, L90 [\[ADS\]](#)
- [33] Dunham, M. K., Rosolowsky, E., Evans, II, N. J., Cyganowski, C. J., Aguirre, J., Bally, J., **Battersby, C.**, Bradley, E. T., Dowell, D., Drosback, M., Ginsburg, A., Glenn, J., Harvey, P., Merello, M., Schlingman, W., Shirley, Y. L., Stringfellow, G. S., Walawender, J., & Williams, J. P., *The Bolocam Galactic Plane Survey. III. Characterizing Physical Properties of Massive Star-forming Regions in the Gemini OB1 Molecular Cloud*, July. 2010, ApJ, 717, 1157 [\[ADS\]](#)
- [34] Elia, D., Schisano, E., Molinari, S., Robitaille, T., Anglés-Alcázar, D., Bally, J., **Battersby, C.**, Benedettini, M., Billot, N., Calzoletti, L., di Giorgio, A. M., Faustini, F., Li, J. Z., Martin, P., Morgan, L., Motte, F., Mottram, J. C., Natoli, P., Olmi, L., Paladini, R., Piacentini, F., Pestalozzi, M., Pezzuto, S., Polychroni, D., Smith, M. D., Strafella, F., Stringfellow, G. S., Testi, L., Thompson, M. A., Traficante, A., & Veneziani, M., *A Herschel study of YSO evolutionary stages and formation timelines in two fields of the Hi-GAL survey*, July. 2010, A&A, 518, L97 [\[ADS\]](#)
- [35] Molinari, S., Swinyard, B., Bally, J., Barlow, M., Bernard, J.-P., Martin, P., Moore, T., Noriega-Crespo, A., Plume, R., Testi, L., Zavagno, A., Abergel, A., Ali, B., Anderson, L., André, P., Baluteau, J.-P., **Battersby, C.**, Beltrán, M. T., Benedettini, M., Billot, N., Blommaert, J., Bontemps, S., Boulanger, F., Brand, J., Brunt, C., Burton, M., Calzoletti, L., Carey, S., Caselli, P., Cesaroni, R., Cernicharo, J., Chakrabarti, S., Chrysostomou, A., Cohen, M., Compiègne, M., de Bernardis, P., de Gasperis, G., di Giorgio, A. M., Elia, D., Faustini, F., Flagey, N., Fukui, Y., Fuller, G. A., Ganga, K., Garcia-Lario, P., Glenn, J., Goldsmith, P. F., Griffin, M., Hoare, M., Huang, M., Ikhe-naode, D., Joblin, C., Joncas, G., Juvela, M., Kirk, J. M., Lagache, G., Li, J. Z., Lim, T. L., Lord, S. D., Marengo, M., Marshall, D. J., Masi, S., Massi, F., Matsuura, M., Minier, V., Miville-Deschênes, M.-A., Montier, L. A., Morgan, L., Motte, F., Mottram, J. C., Müller, T. G., Natoli, P., Neves, J., Olmi, L., Paladini, R., Paradis, D., Parsons, H., Peretto, N., Pestalozzi, M., Pezzuto, S., Piacentini, F., Piazzo, L., Polychroni, D., Pomarès, M., Popescu, C. C., Reach, W. T., Ristorcelli, I., Robitaille, J.-F., Robitaille, T., Rodón, J. A., Roy, A., Royer, P., Russeil, D., Saraceno, P., Sauvage, M., Schilke, P., Schisano, E., Schneider, N., Schuller, F., Schulz, B., Sibthorpe, B., Smith, H. A., Smith, M. D., Spinoglio, L., Stamatellos, D., Strafella, F., Stringfellow, G. S., Sturm, E., Taylor, R., Thompson, M. A., Traficante, A., Tuffs, R. J., Umana, G., Valenziano, L., Vavrek, R., Veneziani, M., Viti, S., Waelkens, C., Ward-Thompson, D., White, G.,

- Wilcock, L. A., Wyrowski, F., Yorke, H. W., & Zhang, Q., *Clouds, filaments, and protostars: The Herschel Hi-GAL Milky Way*, July. 2010, A&A, 518, L100 [\[ADS\]](#)
- [36] Peretto, N., Fuller, G. A., Plume, R., Anderson, L. D., Bally, J., **Battersby, C.**, Beltran, M. T., Bernard, J.-P., Calzoletti, L., Digiorgio, A. M., Faustini, F., Kirk, J. M., Lenfestey, C., Marshall, D., Martin, P., Molinari, S., Montier, L., Motte, F., Ristorcelli, I., Rodón, J. A., Smith, H. A., Traficante, A., Veneziani, M., Ward-Thompson, D., & Wilcock, L., *Mapping the column density and dust temperature structure of IRDCs with Herschel*, July. 2010, A&A, 518, L98 [\[ADS\]](#)
- [37] Rosolowsky, E., Dunham, M. K., Ginsburg, A., Bradley, E. T., Aguirre, J., Bally, J., **Battersby, C.**, Cyganowski, C., Dowell, D., Drosback, M., Evans, II, N. J., Glenn, J., Harvey, P., Stringfellow, G. S., Walawender, J., & Williams, J. P., *The Bolocam Galactic Plane Survey. II. Catalog of the Image Data*, May. 2010, ApJS, 188, 123 [\[ADS\]](#)
- [38] Pratap, P., Shute, P. A., Keane, T. C., **Battersby, C.**, & Sterling, S., *Class i Methanol Masers: Signposts of Star Formation?*, May. 2008, AJ, 135, 1718 [\[ADS\]](#)