

# PROF. CARA BATTERSBY

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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** August 2016 - present  
University of Connecticut (on research leave AY16/17)  
**Research Associate** September 2017 - present  
Smithsonian Astrophysical Observatory  
**National Science Foundation (NSF) Postdoctoral Fellow** August 2016 - July 2017  
Harvard-Smithsonian Center for Astrophysics  
**Submillimeter Array (SMA) Postdoctoral Fellow** Sept. 2013 - July 2016  
Harvard-Smithsonian Center for Astrophysics  
**Ph.D. Astrophysics, University of Colorado, Boulder, CO, Adviser: John Bally** 2013  
*"The Structure, Kinematics, and Evolution of Massive Star and Cluster Forming Regions"*  
**M.A. Astronomy, Boston University, Adviser: Jim Jackson** 2008  
**B.S. Physics & Astronomy, University of Massachusetts Amherst** 2006  
*summa cum laude, Advisers: Min S. Yun & Grant Wilson*

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## HONORS, GRANTS, UConn:

AND AWARDS

- *Provost's Letter of Recognition for Teaching Excellence, all 5.0's for PHYS2701* 2017
- *PI: Templeton Foundation Grant, "BiteScis: K12 Research Brief Engagement Pilot" (\$215k)* 2017
- *National Fellowships Incentive Program (\$1k)* 2017
- *Co-I: UConn Provost's Open Educational Resources Award (\$10k)* 2017
- *Co-I: Provost's Large Course Redesign Initiative Award (\$26k)* 2017
- *Appointed by NASA: Science & Technology Definition Team, Origins Space Telescope* 2016

**Harvard-Smithsonian Center for Astrophysics:**

- *NSF Astronomy & Astrophysics Postdoctoral Fellowship (\$267,000)* 2016
- *National Radio Astronomy Observatory Jansky Fellowship (declined)* 2016
- *Templeton Grant, Exploratory grant for the BiteScis outreach program (\$25,000)* 2015
- *AAS International Travel Grant, for the International Astronomical Union (\$1,000)* 2015
- *SMA Postdoctoral Fellowship, Harvard-Smithsonian Center for Astrophysics* 2013

**University of Colorado & Boston University:**

- *Chance Irick Cooke Fellowship, to one exceptional graduate student each year (\$3,000)* 2012
- *Honorific Fellowship, awarded to select CU-Boulder graduate students (\$2,000)* 2009 & 2010
- *Astronomy Teaching Fellow of the Year Award, Boston University* 2008
- *NSF Graduate Research Fellowship* 2007
- *Presidential Fellowship, to one exceptional incoming graduate student, Boston University* 2006

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PUBLICATIONS C. Battersby has an h-index of 26, is an author on 46 refereed publications, with a total citation count of 2,787 (computed April 2018 from Google Scholar). Complete publication list on the following pages.

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:**

- 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 **astrobites** [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

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<b>PI, 3 hours</b> , Atacama Large Millimeter Array (ALMA)	<b>2016</b>
<i>"Testing a New Mode for Cloud Collapse in Galaxy Centers"</i>	
<b>Over 60 hours as Co-I</b> on the Atacama Large Millimeter Array (ALMA)	<b>2013-2016</b>
<b>Over 30 hours as Co-I</b> on the Very Large Array (VLA)	<b>2013-2016</b>
<b>PI, 60 hours</b> , IRAM 30-m	<b>2015</b>
<i>"Mapping the Bones of the Milky Way"</i>	
<b>PI, 13 hours</b> , Very Large Array (VLA)	<b>2015</b>
<i>"The Importance of Filamentary Accretion Flows in Forming Massive Star Clusters"</i>	
<b>PI, 550 hours</b> , Submillimeter Array (SMA)	<b>2014</b>
<i>"The SMA Legacy Survey of the Central Molecular Zone"</i>	
<b>PI, 45 hours</b> , Submillimeter Array (SMA)	<b>2014</b>
<i>"Hidden Gems: Uncovering the Nature of Massive Starless Clumps"</i>	
<b>Co-I, 200 hours</b> , Atacama Pathfinder Experiment (APEX)	<b>2014</b>
<i>"H<sub>2</sub>CO Thermometry of the CMZ to understand its low star formation rate"</i>	
<b>PI, 3 hours</b> , Green Bank Telescope (GBT)	<b>2014</b>
<i>"The Structure and Kinematics of our Nearest Massive Proto-Cluster"</i>	

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SELECTED  
SCIENTIFIC  
PRESENTATIONS

**Invited Review Talks** (4 since 2013):

- EWASS, *Star formation at the centre of the Galaxy*, 2017
- Fellows at the Frontiers, CIERA 2016
- Sexten Center for Astrophysics, Keynote Speaker, *Mass Assembly from Clouds to Clusters*, 2014
- BASH Symposium, University of Texas Austin, 2013

**Invited Conference Presentations and Colloquium** (31 since 2013):

- Oxford Workshop on Giant Molecular Clouds, by invitation only, Oxford, UK, 2018 (2018)
- Harvard-Smithsonian Center for Astrophysics, Galaxies & Cosmology Seminar, Invited talk, 2018 (2018)
- Caltech Colloquium, 2018 (2018)
- Wesleyan Colloquium, 2018 (2018)

- American Astronomical Society, SMA Special Session, Invited talk, 2018
- Union of Radio Science, General Assembly and Scientific Symposium, Invited talk, 2017
- Trinity College, Physics Seminar, 2017
- National Radio Astronomy Observatory, Charlottesville, Astronomy Colloquium, 2017
- Far-IR Science Interest Group, Invited Webinar, 2017
- National Radio Astronomy Observatory, Socorro, Astronomy Colloquium, 2016
- Harvard-Heidelberg Workshop on Star Formation, Heidelberg, Germany, Invited talk, 2016
- SMA Science in the Next Decade, Taipei, Taiwan, Invited talk, 2016
- University of Texas Austin, Astronomy Colloquium, 2016
- Kavli Institute for Theoretical Physics, Santa Barbara, *The Cold Universe*, 2016
- DRAO Astronomy Colloquium, Penticton, BC, 2016
- NRC Herzberg Institute for Astronomy Colloquium, Victoria, BC, 2016
- University of Connecticut, Department of Physics Colloquium, 2016
- University of California, Berkeley, Department of Astronomy Colloquium, 2016
- Amherst College, Department of Physics and Astronomy Colloquium, 2016
- Bates College, Department of Physics and Astronomy Colloquium, 2015
- University of Massachusetts, Amherst Astronomy Colloquium, 2015
- IAU 'Scale-Free Processes' Focus Meeting, Honolulu, 2015
- University of Florida, *Star & Planet Formation Workshop*, 2015
- American Museum of Natural History Colloquium, 2015
- University of Arizona Tucson FLASH and Origins Talks, 2015
- NRAO Filaments Workshop, Charlottesville, 2014
- MIT Haystack Observatory Colloquium, 2014
- Boston University Astrophysics Colloquium, 2014
- Yale University, Seminar, 2014
- University of Florida, Seminar, 2013
- University of Florida, *ASTROWIN*, 2013

**Invited Public Talks:**

- Keene Public Library, NH, 2017
- Sturbridge Rotary Club, MA, 2017
- Astronomy on Tap, Cairns, Australia, 2016
- Aldrich Astronomical Society, 2016
- Arlington Retired Men's Club, 2016
- Center for Astrophysics Observatory Nights, [The Wild West of Star Formation](#), 2016

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**Students Advised (\* denotes graduate student):**

- 20. Aisha Massiah**, UConn Undergraduate Student. *Gas Flows in the Central Molecular Zone*. Fall 2017 - present.
- 19. Joseph Giangregorio**, UConn Undergraduate Student. *High-Mass Star Formation in our Galaxy*. Fall 2017 - present.
- 18. Harrison Hall**, UConn Undergraduate Student. *Gas Flows in the Central Molecular Zone*. Fall 2017 - present.
- 17. Brian Zelickovics**, UConn Undergraduate Student. *Star Formation in the Central Molecular Zone*. Fall 2017 - present.
- 16. Anthony (Josh) Machado**, UConn Undergraduate Student. *High-Mass Star Formation in our Galaxy*. Fall 2017 - present.
- 15. Alexa Abul**, UConn Undergraduate Student. *The Skeleton on the Milky Way*. Fall 2017 -

RESEARCH  
MENTORSHIP

present.

**14. Christopher Annuzzi**, UConn Undergraduate Student. *Star Formation in the Central Molecular Zone*. Fall 2017 - present.

**13. Cooper Biancur**, UConn Undergraduate Student. *The Skeleton of the Milky Way*. Fall 2017 - present.

**12. Stephanie Santillo**, UConn Undergraduate Student. *Star Formation in the Central Molecular Zone*. Fall 2017.

**11. Elizabeth Gutierrez**, Harvard Banneker Summer Student. *Star Formation in the Central Molecular Zone*. Coadviser: Meredith MacGregor. 2017.

**\*10. H. Perry Hatchfield**, UConn Graduate Student. *Star Formation in the Central Molecular Zone*. 2017 - present.

**9. Irene Vargas-Salzar**, Summer REU student. *The Dense Gas Fraction in the Central Molecular Zone of the Milky Way*. Co-advisers: Qizhou Zhang and Dan Walker. 2016.

**8. Dennis Lee**, Harvard undergraduate student. *Star Formation in the Central Molecular Zone outside the 100-pc Ring*. 2015 - 2016.

**7. Jimmy Castaño**, Harvard undergraduate student. *Formaldehyde Temperature Modeling of Cloud in the Central Molecular Zone*. 2015 - 2016.

**6. Liz Gehret**, Summer REU student. *Identifying Gravitationally Bound Cores in the Central Molecular Zone*. 2015 - 2016.

**5. Amy Cohn**, Harvard undergraduate student. *Physical Properties of the 'Bones of the Milky Way'*. Co-adviser: Alyssa Goodman. 2015 - present.

**\*4. Mark Graham**, Southampton Master's Student at Harvard University. *Extreme Star Formation in the Center of Our Galaxy*. 2014 - 2015.

**\*3. Catherine Zucker**, Harvard Graduate Student, previously Smithsonian Astrophysical Observatory REU Student. *Milky Way Bones*. Co-adviser: Alyssa Goodman. 2014 - present

**\*2. Brian Svoboda**, Graduate Student at University of Arizona at Tucson. *The Nature of Starless Clumps*. Co-adviser: Yancy L. Shirley. 2013 - present.

**\*1. Nalin Vutisalchavakul**, University of Texas, Austin. *The Star Formation Relation for Regions in the Galactic Plane: The Effect of Spatial Resolution*. Primary adviser: Neal J. Evans II. 2013.

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## TEACHING

**Instructor:** PHYS 2701: The Foundations of Modern Astrophysics, Fall 2017

University of Connecticut, Storrs, CT

*Provost's Letter of Recognition for Teaching Excellence, SET scores of 5.0 for instructor and 5.0 for course*

**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

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## SELECTED SERVICE

**UConn Service:**

- **UConn Astronomy Association Faculty Advisor:** 2018-present
- **Co-Chair of Diversity Committee:** along with Prof. Dormidontova, 2018-present

- **Furniture Committee:** 2018-present
- **Lead Organizer:** for Graduate Student Research Fellowship Information Presentation, Fall 2017
- **University Scholar Program Committee Member:** for Emmerson Dang, 2017-present
- **Development of New Astrophysics Minor:** Along with Profs. Whitaker and Trump, approved Fall 2017
- **Lead Development of New Astrophysics Course:** PHYS 2701, *Foundations of Modern Astrophysics*, 2017
- **Research Mentor:** to 9 UConn undergraduate students and 1 graduate student. Wrote 100s of reference letters for 13 students, including 8 UConn students, 2017-present
- **Creation of 4 new Astrophysics Courses:** PHYS 2701, 2702, 4710, and 4720, along with Profs. Whitaker and Trump, 2016-2017
- **Oral Preliminary Exam Committee Member:** for Yasaman Homyouni, 2017

**Service to Scientific Community:**

- **Science Organizing Committee:** Olympian Symposium *Gas and Stars from milli- to megaparsecs*, Greece, 2018
- **Proposal Review Panel:** NASA Hubble Postdoctoral Fellowship Program, 2018
- **Leader for the Origins Space Telescope Advocacy Group:** NASA OST, 2017-present
- **NASA-appointed member of the Science & Technology Definition Team (STDT):** [Origins Space Telescope \(OST\)](#), 2016-present
- **Leader for the Milky Way, ISM, and Local Galaxy Science Group:** NASA OST, 2016-present
- **Proposal Review Panel:** NASA ADAP, 2015
- **Time Allocation Committee:** Submillimeter Array, 2015-2017
- **Lead Organizer** of the CfA Seminar Series 2015, 2016
- **Chair** of the Science and Local Organizing Committees for the [Harvard-Heidelberg Workshop on Star Formation](#) 2015
- **Session Chair:** *Multi-Scale Star Formation* 2017; *AAS Star Formation* 2016; *IAU 'Scale-Free Processes'* 2015; *AAS Star Formation III* 2015; *Mass Assembly from Clouds to Clusters* 2014
- **Organizer of the CU-Boulder Star Formation Journal Club:** 2012-2013
- **Graduate Admissions Committee:** University of Colorado Boulder, Spring 2010
- **Referee:** *ApJ*, *A&A*

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. Recipient of over \$240,000 in grants from the Templeton Foundation.

**Various Outreach:** April 2018: Led Astronomy Activity at Hartford Schools Physics Open House, August 2017: Co-organized solar eclipse viewing party, 2017: Science Advisor for the Play "The Women who Mapped the Stars" by Joyce Van Dyke, premiering at the Central Square Theater. **Co-Founder and Leader of [CU-STARS](#):** Founded a new program 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. CU-Boulder, 2010-2013.

**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. Fall 2010-Spring 2012.

**Various Other Outreach:** [ComSciCon](#) workshop organizer (2015-2017), [WorldWide Telescope Ambassador](#) (2014-2016), 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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