

# SUSAN E. CLARK

## *Curriculum Vitae*

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### EDUCATION

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#### Columbia University

Ph.D. Candidate, Astrophysics 2017 (expected)

Thesis Project: *Magnetic Fields in the Interstellar Medium*

Thesis Advisors: Mary E. Putman, Joshua E.G. Peek

M.A., M.Phil, Astrophysics 2014

#### The University of North Carolina at Chapel Hill

B.S., Physics 2012

Thomas Jefferson High School for Science & Technology 2008

### FELLOWSHIPS, HONORS AND AWARDS

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PRL Editor's Recommendation Paper 2015

NSF Graduate Fellowship 2012 – present

Columbia Dean's Fellowship 2012 – present

Morehead-Cain Scholarship 2008 – 2012

Full scholarship to UNC-Chapel Hill

### REFEREED PUBLICATIONS

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6 journal articles, 2 first author

6. F. Heitsch, B. Bartell, **S.E. Clark**, J.E.G. Peek, D. Cheng, M.E. Putman. *Three-Dimensional Orientation of Compact High Velocity Clouds*. 2016, Submitted to MNRAS Letters.
5. J. Malinen, L. Montier, J. Montillaud, M. Juvela, I. Ristorcelli, **S.E. Clark**, O. Berné, J.-Ph. Bernard, V.-M. Pelkonen, D.C. Collins. *Matching dust emission structures and magnetic field in high-latitude cloud L1642: comparing Herschel and Planck maps*. 2016, accepted to MNRAS. [arXiv:1512.03775](https://arxiv.org/abs/1512.03775).
4. **S.E. Clark**, J. Colin Hill, J.E.G. Peek, M.E. Putman, B.L. Babler. *Neutral hydrogen structures trace dust polarization angle: Implications for cosmic microwave background foregrounds*. 2015, PRL 115, 241302. Selected as PRL Editor's Recommendation. [arXiv:1508.07705](https://arxiv.org/abs/1508.07705).
3. N.M. McClure-Griffiths, S. Stanimirović, [5 authors], **S.E. Clark**, [3 authors]. *Galactic and Magellanic Evolution with the SKA*. 2015, from “Advancing Astrophysics with the Square Kilometre Array”, PoS. [arXiv:1501.01130](https://arxiv.org/abs/1501.01130)
2. **S.E. Clark**, J.E.G. Peek, M.E. Putman. *Magnetically Aligned HI Fibers and the Rolling Hough Transform*. 2014, ApJ, 789, 82. [arXiv:1312.1338](https://arxiv.org/abs/1312.1338)

1. W.-H. Hsu, M.E. Putman, F. Heitsch, S. Stanimirović, J.E.G. Peek, **S.E. Clark**. *Physical Properties of Complex C Halo Clouds*. 2010, AJ, 141, 57 [arXiv:1011.0011](https://arxiv.org/abs/1011.0011)

## TEACHING EXPERIENCE

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Head Teaching Assistant, Columbia Department of Astronomy	Fall 2015 – present
Grader, Columbia University, Life in the Universe	Fall 2014
Instructor, Columbia University, Observational Astronomy Lab	Spring 2014
Instructor, Columbia University, Earth, Moon, & Planets Lab	Fall 2013
Grader, Columbia University, Life in the Universe	Fall 2013
Teaching Assistant, Columbia University, Galaxies & Cosmology	Spring 2013
Teaching Assistant, Columbia University, Stars & Atoms	Fall 2012
Student Instructor, UNC-Chapel Hill, Physics Help Center	2011 – 2012
Teaching Assistant, UNC-Chapel Hill, Calculus-Based Newtonian Mechanics	Fall 2011

## STUDENTS ADVISED

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Lowell Schudel, Columbia University, undergraduate research	Summer 2014, 2015
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## SCIENTIFIC TALKS

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### Invited Talks and Colloquia

6. *Measuring B-Mode Polarization Foregrounds with Neutral Hydrogen* Jan. 2016  
AMNH Colloquium, New York, New York
5. *Measuring B-Mode Polarization Foregrounds with Neutral Hydrogen* Nov. 2015  
Brown Astrophysics Seminar, Providence, Rhode Island
4. *Measuring B-mode Polarization Foregrounds with Neutral Hydrogen* Oct. 2015  
Institut de Recherche en Astrophysique et Planétologie ISM Journal Club, Toulouse, France
3. *Magnetically Aligned HI and Planck Polarized Dust* Oct. 2015  
IAS, ENS, and CEA/Saclay Joint ISM Seminar, IAS, Orsay, France
2. *The Saturation of the Magnetorotational Instability via Weakly Nonlinear Analysis* Dec. 2014  
Princeton Plasma Physics Laboratory Theory Seminar, Princeton, New Jersey
1. *Exploring MRI Saturation via Weakly Nonlinear Analysis* Aug. 2014  
Conference: Non-Ideal MHD, Stability, and Dissipation in PPDs, Copenhagen, Denmark

### Contributed Talks and Posters

17. *Properties of Diffuse Atomic Fibers* May 2016  
Talk, Star Formation, Magnetic Fields, and Diffuse Matter in the Galaxy, Madison, Wisconsin
16. *Unique Approaches to Magnetic Phenomena: Polarized CMB Foregrounds and the Magnetorotational Instability* Feb. 2016  
Talk, JILA Seminar, Colorado University Boulder, Boulder, Colorado
15. *Measuring B-mode Polarization Foregrounds with Neutral Hydrogen* Oct. 2015  
Talk, Magnetic Fields in the Universe V, Corsica, France
14. *HI Shape Traces Planck Dust Polarization: An Independent Determination of Polarized CMB Foregrounds* Oct. 2015  
Talk, IAU Focus Meeting 5, The Legacy of Planck, Honolulu, Hawai'i

13. *Magnetically Aligned HI and Dust: Measuring the Physical Properties of HI Fibers* Oct. 2015  
Poster, IAU Symposium 315, From Interstellar Clouds to Star-Forming Galaxies: Universal Processes?, Honolulu, Hawai'i
12. *HI structures trace dust polarization angle: Implications for CMB foregrounds* Sept. 2015  
Talk, Experimental CMB Journal Club, Columbia University, New York, NY
11. *Measuring B-mode Polarization Foregrounds with Neutral Hydrogen* May 2015  
Talk, Pontifica Universidad Catolica, Santiago, Chile
10. *Magnetically Aligned HI and Dust in the ISM* May 2015  
Talk, Midwest Magnetic Fields Workshop, Madison, Wisconsin
9. *Magnetically Aligned HI Fibers* Oct. 2014  
Poster, NSF Directorate for Mathematical & Physical Sciences, New York, New York
8. *Quantifying Linear Structure with the Rolling Hough Transform and the dRHT* Oct. 2014  
Poster, Filamentary Structure in Molecular Clouds, NRAO, Charlottesville, Virginia
7. *Magnetically Aligned HI Fibers* May 2014  
Poster, Galactic Science with the SKA and its Pathfinders, Leiden, Netherlands
6. *Magnetically Aligned HI Fibers* April 2014  
Talk, Midwest Magnetic Fields Workshop, Madison, Wisconsin
5. *Magnetized HI Fibers and the Rolling Hough Transform* July 2013  
Talk, Phases of the ISM Conference, Heidelberg, Germany
4. *The Disruption of High-Velocity Clouds in the Milky Way* April 2012  
Talk, Senior Research Symposium, Chapel Hill, North Carolina
3. *Dust-to-Gas Comparisons with GALFA-HI* Jan. 2012  
Poster, AAS Winter Meeting, Austin, Texas
2. *Gas/Dust Comparisons Using GALFA-HI Data* Aug. 2011  
Talk, GALFA-HI Collaboration Meeting, Madison, Wisconsin
1. *Dust and Gas in the Interstellar Medium* Aug. 2011  
Talk, REU Symposium, Arecibo Observatory, Puerto Rico

#### Public Talks and Guest Lectures

2. *The Dusty, Magnetized Interstellar Medium and CMB Polarization* March 30, 2016  
Hunter College "Unsolved Problems in Astrophysics" course
1. *Our Magnetic Universe* Dec. 18, 2015  
Columbia Astronomy Outreach Lecture Series

#### OUTREACH AND SERVICE

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Instructor for <a href="#">Rooftop Variables</a> , Curtis High School, Staten Island, New York	2012 – present
Outreach Volunteer, bi-weekly community stargazing, Columbia University	2012 – present
Founder, President, UNC-Chapel Hill Women in Physics	2010 – 2012
Member, Social Chair, UNC-Chapel Hill Society of Physics Students	2010 – 2012
Chapter Director, Mentor, UNC-Chapel Hill <a href="#">Strive For College</a>	2009 – 2012

#### OTHER PUBLICATIONS

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*Closing My Eyes*, **S. E. Clark**, personal essay, The Washington Post Magazine, May 2009