# Susan E. Clark

*Curriculum Vitae*

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## APPOINTMENTS

| | |
|---|---|
| Hubble Fellow | 2017 – present |
| Member, Institute for Advanced Study | 2017 – present |

## EDUCATION

**Columbia University**

Ph.D., Astrophysics — 2017
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

## HONORS, AWARDS AND GRANTS

| | |
|---|---|
| Hubble Fellowship | 2017 - 2020 |
| Institute for Advanced Study School of Natural Sciences Fellowship | 2020 - 2022 |
| Einstein Fellowship | declined |
| NSF Graduate Research Fellowship | 2012 – 2017 |
| Columbia Dean's Fellowship | 2012 – 2017 |
| ASNY Graduate Student Paper Prize | 2016 |
| CCAPP Price Prize in Cosmology and AstroParticle Physics | 2016 |
| PI, VLA Observing Proposal 16A-133, 8 hours | 2016 |
| PRL Editors' Recommendation Paper | 2015 |
| Morehead-Cain Scholarship | 2008 – 2012 |

Full scholarship to UNC-Chapel Hill

## PUBLICATIONS

First-author journal articles

6. **S.E. Clark**, J.E.G. Peek, M.-A. Miville-Deschênes. *The physical nature of neutral hydrogen intensity structure.* 2019, ApJ 874, 171. arXiv:1902.01409

5. **S.E. Clark**. *A new probe of line-of-sight magnetic field tangling.* 2018, ApJL 857, L10. arXiv:1802.00011

4. **S.E. Clark** & J.S. Oishi. *The weakly nonlinear magnetorotational instability in a global, cylindrical Taylor-Couette flow.* 2017, ApJ 841, 2. arXiv:1610.01603

3. **S.E. Clark** & J.S. Oishi. *The weakly nonlinear magnetorotational instability in a local geometry.* 2017, ApJ 841, 1. arXiv:1610.01616

2. **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 Editors' Recommendation. arXiv:1508.07705.

1. **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

Other journal articles

6. A.J.M. Thomson, T.L. Landecker, [11 authors], **S.E. Clark**, [2 authors]. *Through thick or thin: Multiple components of the magneto-ionic medium towards the nearby* HII *region Sharpless 2-27 revealed by Faraday tomography.* 2019, MNRAS 487, 4751. arXiv:1905.09285

5. J.E.G. Peek, B.L. Babler, Y. Zheng, **S.E. Clark**, K.A. Douglas, E.J. Korpela, M.E. Putman, S. Stanimirović, S.J. Gibson, C. Heiles. *The GALFA-HI Survey Data Release 2.* 2018, ApJS 234, 1. ADS

4. 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, MNRAS Letters 462, L46. arXiv:1606.06689

3. 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, MNRAS 460, 1934. arXiv:1512.03775

2. 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

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.* 2011, AJ 141, 57 arXiv:1011.0011

Conference proceedings

2. **S.E. Clark**. *Galactic neutral hydrogen and the magnetic ISM foreground.* 2017, in Jelić & van der Hulst (Eds.) *Peering towards Cosmic Dawn*, Proceedings of the International Astronomical Union, Symposium No. 333, Dubrovnik, Croatia

1. **S.E. Clark**, J.E.G. Peek, J. Colin Hill, M.E. Putman. *Quantifying the magnetic alignment of* HI *and dust in the diffuse ISM.* 2016, In P. Jablonka, Ph. André, F. van der Tak (Eds.) *From Interstellar Clouds to Star-forming Galaxies: Universal Processes?* Proceedings of the International Astronomical Union Symposia and Colloquia, IAU 315, Honolulu, Hawaii

Selected white papers and mission proposals

4. L. Fissel, C.L.H. Hull, **S.E. Clark**, D.T. Chuss et al. *Studying Magnetic Fields in Star Formation and the Turbulent Interstellar Medium.* 2019, Astro2020 Science White Paper. arXiv:1903.08757

3. **S.E. Clark**, C. Heiles, T. Robishaw. *Magnetic Fields and Polarization in the Diffuse Interstellar Medium.* 2019, Astro2020 Science White Paper. arXiv:1903.07671

2. D. Stinebring, S. Chatterjee, **S.E. Clark**., J.M. Cordes, T. Dolch, C. Heiles, [12 authors]. *Twelve Decades: Probing the ISM from kiloparsec to sub-AU scales.* 2019, Astro2020 Science White Paper. arXiv:1903.073701

1. S. Hanany et al. incl. **S.E. Clark**. *PICO: Probe of Inflation and Cosmic Origins.* 2019, Probe class mission study for NASA and 2020 Decadal Panel. arXiv:1902.10541

## SCIENTIFIC TALKS

Significant presentations, including 37 invited talks/colloquia

59. Talk, New Perspectives on Galactic Magnetism, Newcastle upon Tyne, England — June 2019
58. Talk, Hubble Fellows Symposium, Baltimore, Maryland — Mar. 2019
57. Invited Talk, Pathways to the Future of Arecibo Observatory, San Juan, Puerto Rico — Feb. 2019
56. Invited Talk, Princeton Gravity Group Seminar, Princeton, New Jersey — Feb. 2019
55. Talk, Big Apple Magnetic Fields, New York, New York — Jan. 2019
54. Invited Talk, Interstellar Filament Paradigm, Nagoya, Japan — Nov. 2018
53. Invited Talk, The Milky Way in the Age of Gaia, Orsay, France — Oct. 2018
52. Invited Talk, Gruber Cosmology Conference, Yale University — Sept. 2018
51. Invited Talk, Cosmology with CMB-S4, Princeton University — Sept. 2018
50. Invited Talk, CMB Foregrounds Workshop, Flatiron CCA, New York, New York — June 2018
49. Invited Talk & Panel, PICO Science Meeting, University of Minnesota — May 2018
48. Colloquium, University of Rochester — Apr. 2018
47. Talk, Hubble Fellows Symposium, Baltimore, Maryland — Mar. 2018
46. Invited Talk, Princeton University Wednesday Lunch Talk, Princeton, New Jersey — Feb. 2018
45. Invited Talk, UC Berkeley TAC Seminar, Berkeley, California — Dec. 2017
44. Invited Talk, CMB Foregrounds Workshop, San Diego, California — Nov. 2017
43. Colloquium, University of Wisconsin - Madison — Nov. 2017
42. Invited Talk, GMIMS Collaboration Workshop, DRAO, Canada — Oct. 2017
41. Invited Talk, CIERA/Northwestern Seminar, Evanston, Illinois — Oct. 2017
40. Invited Talk, Magnetic Fields in the Universe VI, Natal, Brazil — Oct. 2017
39. Invited Talk, IAU Symposium 333: Peering Toward Cosmic Dawn, Dubrovnik, Croatia — Oct. 2017
38. Talk, IAS Seminar, Princeton, New Jersey — Sept. 2017
37. Invited Talk, The Interstellar Medium Beyond Three Dimensions, Orsay, France — July 2017
36. Invited Talk, Midwest Magnetic Fields Workshop, Madison, Wisconsin — May 2017
35. Invited Talk, Rutgers Astrophysics Seminar, New Brunswick, New Jersey — Mar. 2017
34. Colloquium, Bates College, Lewiston, Maine — Feb. 2017
33. Invited Talk, AAS Special Session: New, Fundamental, Cutting-Edge Science from Arecibo Observatory, Grapevine, Texas — Jan. 2017
32. Talk, AAS dissertation talk, Dust and Magnetic Fields, Grapevine, Texas — Jan. 2017
31. Invited Talk, Cosmic Rays, Astrophysical Turbulence and Magnetic Reconnection, Natal, Brazil — Dec. 2016
30. Invited Talk, NRAO/UVA Seminar, Charlottesville, Virginia — Nov. 2016
29. Invited Talk, ASNY Prize Talk, Siena College, Albany, New York — Nov. 2016
28. Invited Talk, Star Formation/ISM Rendezvous Seminar, Princeton, New Jersey — Nov. 2016
27. Invited Talk, Simons Observatory Meeting, Princeton, New Jersey — Nov. 2016
26. Invited Talk, OSU CCAPP Price Prize Seminar, Columbus, Ohio — Sept. 2016
25. Invited Talk, Harvard-Smithsonian CfA Galaxies & Cosmology Seminar, Cambridge, Massachussetts — Sept. 2016
24. Invited Talk, CITA Seminar, Toronto, Canada — Aug. 2016
23. Talk, Star Formation, Magnetic Fields, and Diffuse Matter in the Galaxy, Madison, Wisconsin — May 2016
22. Invited Talk, JILA Seminar, Colorado University Boulder, Boulder, Colorado — Feb. 2016
21. Colloquium, American Museum of Natural History, New York, New York — Jan. 2016
20. Invited Talk, Brown Astrophysics Seminar, Providence, Rhode Island — Nov. 2015

19. Invited Talk, IRAP ISM Seminar, Toulouse, France — Oct. 2015
18. Talk, Magnetic Fields in the Universe V, Corsica, France — Oct. 2015
17. Invited Talk, IAS, ENS, and CEA/Saclay Joint ISM Seminar, IAS, Orsay, France — Oct. 2015
16. Talk, Experimental CMB Journal Club, Columbia University, New York, New York — Sept. 2015
15. Talk, IAU Focus Meeting 5, The Legacy of Planck, Honolulu, Hawaii — Aug. 2015
14. Poster, IAU Symposium, From Interstellar Clouds to Star-Forming Galaxies: Universal Processes?, Honolulu, Hawaii — Aug. 2015
13. Talk, Pontifica Universidad Católica, Santiago, Chile — May 2015
12. Talk, Midwest Magnetic Fields Workshop, Madison, Wisconsin — May 2015
11. Invited Talk, PPPL Theory Seminar, Princeton, New Jersey — Dec. 2014
10. Poster, NSF Directorate for Mathematical & Physical Sciences, New York, New York — Oct. 2014
9. Poster, Filamentary Structure in Molecular Clouds, NRAO, Charlottesville, Virginia — Oct. 2014
8. Invited Talk, Non-Ideal MHD, Stability, and Dissipation in PPDs, Copenhagen, Denmark — Aug. 2014
7. Poster, Galactic Science with the SKA and its Pathfinders, Leiden, Netherlands — May 2014
6. Talk, Midwest Magnetic Fields Workshop, Madison, Wisconsin — Apr. 2014
5. Talk, Phases of the ISM Conference, Heidelberg, Germany — July 2013
4. Talk, Senior Research Symposium, Chapel Hill, North Carolina — Apr. 2012
3. Poster, AAS Winter Meeting, Austin, Texas — Jan. 2012
2. Talk, GALFA-HI Collaboration Meeting, Madison, Wisconsin — Aug. 2011
1. Talk, REU Symposium, Arecibo Observatory, Puerto Rico — Aug. 2011

## TEACHING EXPERIENCE

Team Leader, Instructor, Introduction to Astrophysics, Wagner Youth Correctional Facility — 2019
Instructor, Introduction to Astrophysics, East Jersey State Prison — 2018
Guest Lecturer, Columbia University, upper-level undergraduate Galaxies course — 2017
Head Teaching Assistant, Columbia Department of Astronomy — 2015 – 2016
Guest Lecturer, Hunter College, Unsolved Problems in Astrophysics — 2016
Grader, Columbia University, Life in the Universe — 2014
Instructor, Columbia University, Observational Astronomy Lab — 2014
Instructor, Columbia University, Earth, Moon, & Planets Lab — 2013
Grader, Columbia University, Life in the Universe — 2013
Teaching Assistant, Columbia University, Galaxies & Cosmology — 2013
Teaching Assistant, Columbia University, Stars & Atoms — 2012
Instructor, UNC-Chapel Hill, Physics Help Center — 2011 – 2012
Teaching Assistant, UNC-Chapel Hill, Calculus-Based Newtonian Mechanics — 2011

## STUDENTS ADVISED

Doyeon Kim, Columbia University, graduate student — 2018 – present
Jessica Campbell, University of Toronto, PhD coadviser with Bryan Gaensler — 2017 – present
Larry Li, Columbia University, undergraduate research — 2016 – present
Garrison Grogan, Columbia University, undergraduate research — 2016 – 2017
Lowell Schudel, Columbia University, undergraduate research — 2014 – 2015

## PROFESSIONAL SERVICE

Member Representative, IAS Diversity Committee — 2018–present
SOC, Warm Ionized Medium in Galaxies, Green Bank, West Virginia — 2019
Organizer, IAS Informal Seminar — 2018–2019

Organizer, The Milky Way in the Age of Gaia, Paris 2018
Organizer, The Interstellar Medium Beyond 3D, Paris 2017
Organizer, Columbia University Weekly Astro-ph Discussion 2016 – 2017
Referee, *The Astrophysical Journal*, *The Astrophysical Journal Letters*, *Astronomy & Astrophysics*

## SELECTED OUTREACH AND SERVICE

Team Leader, Instructor, Prison Teaching Initiative 2018 – present
Public Talk, Astronomy on Tap, Trenton, New Jersey 2019
Volunteer, Reading Team Math Program, Harlem, New York 2016 – 2017
Instructor, Rooftop Variables, Curtis High School, Staten Island, New York 2012 – 2017
Outreach Volunteer, bi-weekly community stargazing, Columbia University 2012 – 2017
Public Lecture, *Our Magnetic Universe*, Columbia Astronomy Outreach Lecture Series 2015
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 Strive For College 2009 – 2012

## OTHER PUBLISHED WRITING

*Interstellar Magnetism*, **S.E. Clark**, article, The Institute Letter, Spring 2019
*Closing My Eyes*, **S.E. Clark**, personal essay, The Washington Post Magazine, May 2009