Susan E. Clark

Curriculum Vitae

School of Natural Sciences
1 Einstein Drive
Princeton, New Jersey 08540

seclark@ias.edu
sns.ias.edu/∼seclark
github: seclark

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, accepted to MNRAS.

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

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
Organizer, IAS Informal Seminar — 2018–present
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