

# SUSAN E. CLARK

## *Curriculum Vitae*

School of Natural Sciences  
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github: seclark

### APPOINTMENTS

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

### EDUCATION

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|   |      |
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| <b>Columbia University</b>  |      |
| Ph.D., Astrophysics   | 2017 |
| Thesis Project: <i>Magnetic Fields in the Interstellar Medium</i> |      |
| Thesis Advisors: Mary E. Putman, Joshua E.G. Peek                 |      |
| M.A., M.Phil, Astrophysics  | 2014 |
| <b>The University of North Carolina at Chapel Hill</b>            |      |
| B.S., Physics   | 2012 |
| <b>Thomas Jefferson High School for Science &amp; Technology</b>  | 2008 |

### HONORS, AWARDS AND GRANTS

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|  |             |
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| 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 Prize 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 |
| <a href="#">Full scholarship</a> to UNC-Chapel Hill                |             |

### PUBLICATIONS

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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, submitted. [arXiv:1902.01409](https://arxiv.org/abs/1902.01409)
5. **S.E. Clark**. *A new probe of line-of-sight magnetic field tangling*. 2018, ApJL 857, L10. [arXiv:1802.00011](https://arxiv.org/abs/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](https://arxiv.org/abs/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 H I fibers and the Rolling Hough Transform*. 2014, ApJ 789, 82. [arXiv:1312.1338](#)

#### Other journal articles

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 H I 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

## SCIENTIFIC TALKS

54 presentations, 35 invited talks/colloquia

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| 54. Talk, Big Apple Magnetic Fields, New York, New York                            | Jan. 2019  |
| 53. Invited Talk, Interstellar Filament Paradigm, Nagoya, Japan                    | Nov. 2018  |
| 52. Invited Talk, The Milky Way in the Age of Gaia, Orsay, France                  | Oct. 2018  |
| 51. Invited Talk, Gruber Cosmology Conference, Yale University                     | Sept. 2018 |
| 50. Invited Talk, Cosmology with CMB-S4, Princeton University                      | Sept. 2018 |
| 49. Invited Talk, CMB Foregrounds Workshop, Flatiron CCA, New York, New York       | June 2018  |
| 48. Invited Talk & Panel, PICO Science Meeting, University of Minnesota            | May 2018   |
| 47. Colloquium, University of Rochester  | April 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  |

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| 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, Massachusetts                         | 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, Pontificia 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  | April 2014 |
| 5. Talk, Phases of the ISM Conference, Heidelberg, Germany   | July 2013  |
| 4. Talk, Senior Research Symposium, Chapel Hill, North Carolina  | April 2012 |
| 3. Poster, AAS Winter Meeting, Austin, Texas   | Jan. 2012  |

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| 2. Talk, GALFA-HI Collaboration Meeting, Madison, Wisconsin | Aug. 2011 |
| 1. Talk, REU Symposium, Arecibo Observatory, Puerto Rico    | Aug. 2011 |

## TEACHING EXPERIENCE

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| Instructor, Pod Leader, Introduction to Astrophysics, <a href="#">Prison Teaching Initiative</a> | 2018 – present |
| 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

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|  |                |
|--|----------------|
| 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

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|--|--------------|
| Member Representative, IAS Diversity Committee   | 2018–present |
| Organizer, IAS Informal Seminar  | 2018–present |
| Organizer, <a href="#">The Milky Way in the Age of Gaia</a> , Paris  | 2018         |
| Organizer, <a href="#">The Interstellar Medium Beyond 3D</a> , Paris   | 2017         |
| Organizer, Columbia University Weekly Astro-ph Discussion  | 2016 – 2017  |
| Referee, <i>The Astrophysical Journal</i> , <i>The Astrophysical Journal Letters</i> , <i>Astronomy &amp; Astrophysics</i> |              |

## SELECTED OUTREACH AND SERVICE

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| Volunteer, <a href="#">Reading Team Math Program</a> , Harlem, New York                     | 2016 – 2017 |
| Instructor, <a href="#">Rooftop Variables</a> , Curtis High School, Staten Island, New York | 2012 – 2017 |
| Outreach Volunteer, bi-weekly community stargazing, Columbia University                     | 2012 – 2017 |
| Public Lecture, <i>Our Magnetic Universe</i> , 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 <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