James Colin Hill

Curriculum Vitae

Current Address	BH-229 Institute for Advanced Study School of Natural Sciences Einstein Drive Princeton, NJ 08540 USA
Contact	E-mail: jch@ias.edu jcolin.hill@gmail.com Telephone: +1 (509) 220-8589 WWW: http://www.sns.ias.edu/~jch/
Citizenship	USA

Research Interests	Theoretical Cosmology and Data Analysis: Cosmic Microwave Background; Large-Scale Structure; Galaxy Clusters; Sunyaev-Zel'dovich Effect; Gravitational Lensing; Cosmological Tests of Fundamental Physics

Education

Princeton University 2009 - 2014
Princeton, NJ
Ph.D. (2014), M.A. (2011), Astrophysical Sciences
Thesis: *Constraints on Cosmology and the Physics of the Intracluster Medium from Secondary Anisotropies in the Cosmic Microwave Background*
Thesis Advisor: David N. Spergel

University of Cambridge 2008 - 2009
Cambridge, UK
M.ASt. / Certificate of Advanced Study in Mathematics with Distinction (2009)
Advisors: Anthony Challinor, Paul Shellard

Massachusetts Institute of Technology (MIT) 2004 - 2008
Cambridge, MA
S.B. Physics, S.B. Mathematics (2008)
Thesis: *Cosmological Constraints from the Virial Mass Function of Nearby Galaxy Groups and Clusters*
Thesis Advisors: Claude Canizares, Kenneth Rines (CfA)

Positions Held

Member, Institute for Advanced Study (IAS) 2017 - 2021
Flatiron Fellow, Center for Computational Astrophysics (CCA)
Joint postdoctoral fellowship

IAS, Princeton, NJ
Flatiron Institute, Simons Foundation, New York, NY

Consultant, Center for Computational Astrophysics Summer 2017
Flatiron Institute, Simons Foundation, New York, NY

Junior Fellow, Simons Society of Fellows 2014 - 2017
Columbia University, New York, NY
Faculty Contact: Zoltán Haiman
Postdoctoral fellowship funded by the Simons Foundation

Harvard-Smithsonian Center for Astrophysics (CfA) 2007 - 2008
Cambridge, MA
Advisor: Kenneth Rines
NSF REU summer intern (continued project for MIT thesis research)

MIT 2006 - 2007
Cambridge, MA
Advisor: Max Tegmark
Research assistant in cosmology at MIT Kavli Institute for Astrophysics & Space Research (MKI) [through MIT Undergraduate Research Opportunities Program (UROP)]

MIT 2005
Cambridge, MA
Advisor: Scott Hughes
Summer research assistant in gravitational wave analysis at MKI [through MIT UROP]

Gonzaga University 2003 - 2004
Spokane, WA
Advisors: Gail Nord, John Nord
Research assistant in discrete mathematics and algorithms

Awards

Enseignant Chercheur Invité (Université Paris Diderot)	March 2016
Junior Fellow, Simons Society of Fellows	2014-17
R.A. Watchman Prize for Part III Mathematics	2009
Foundation Scholarship (Jesus College, Cambridge)	2009
NSF Graduate Research Fellowship	2008-11
Barrett Award for Research in Astrophysics (MIT)	2008
Orloff Award for Service in Physics (MIT)	2008
Phi Beta Kappa	2008
Sigma Pi Sigma	2008
Rhodes Scholarship Finalist	2007
Paul E. Gray UROP Researcher (MIT)	2005
United States Presidential Scholar	2004

National Merit Scholar 2004-8
Robert C. Byrd Honors Scholar 2004

GRANTS **NASA 17-ATP17-0048** (Co-I; Awarded 2/2/18; Award: $614,196): "Realizing the Full Potential of Weak Lensing Cosmology"

NSF AST-1311756 (Co-I; Awarded 9/30/13; Award: $530,000): "Combining Thermal SZ and Gravitational Lensing Measurements: A Novel Approach to Measuring the Amplitude of Matter Fluctuations"

PUBLICATIONS **First- or second-author papers:**

1. M. S. Madhavacheril and **J. C. Hill**. "Mitigating Foreground Biases in CMB Lensing Reconstruction Using Cleaned Gradients" (2018). *Phys. Rev. D* submitted, `arXiv:1802.08230 [astro-ph.CO]`.
2. D. Alonso, **J. C. Hill**, R. Hložek, and D. N. Spergel. "Measurement of the thermal Sunyaev-Zel'dovich effect around cosmic voids" (2018). *Phys. Rev. D* in press, `arXiv:1709.01489 [astro-ph.CO]`.
3. **J. C. Hill**, E. J. Baxter, A. Lidz, J. P. Greco, and B. Jain. "The Two-Halo Term in Stacked Thermal Sunyaev-Zel'dovich Measurements: Implications for Self-Similarity" (2017). *Phys. Rev. D* submitted, `arXiv:1706.03753 [astro-ph.CO]`.
4. S. Ferraro and **J. C. Hill**. "Bias to CMB Lensing Reconstruction from Temperature Anisotropies due to Large-Scale Galaxy Motions" (2018). *Phys. Rev. D*, 97, 023512, `arXiv:1705.06751 [astro-ph.CO]`.
5. B. Yu, **J. C. Hill**, and B. D. Sherwin. "Multi-tracer CMB delensing maps from *Planck* and *WISE* data" (2017). *Phys. Rev. D*, 96, 123511, `arXiv:1705.02332 [astro-ph.CO]`.
6. J. Chluba, **J. C. Hill**, and M. H. Abitbol. "Rethinking CMB foregrounds: systematic extension of foreground parameterizations" (2017). *MNRAS*, 472, 1195, `arXiv:1701.00274 [astro-ph.CO]`.
7. J. Liu, **J. C. Hill**, B. D. Sherwin, A. Petri, V. Böhm, and Z. Haiman. "CMB Lensing Beyond the Power Spectrum: Cosmological Constraints from the One-Point PDF and Peak Counts" (2016). *Phys. Rev. D*, 94, 103501, `arXiv:1608.03169 [astro-ph.CO]`.
8. S. Ferraro, **J. C. Hill**, N. Battaglia, J. Liu, and D. N. Spergel. "The Kinematic Sunyaev-Zel'dovich Effect with Projected Fields II: Prospects, Challenges, and Comparison with Simulations" (2016). *Phys. Rev. D*, 94, 123526, `arXiv:1605.02722 [astro-ph.CO]`.
   —Highlighted as *Phys. Rev. D* Editors' Suggestion
9. **J. C. Hill**, S. Ferraro, N. Battaglia, J. Liu, and D. N. Spergel. "The Kinematic Sunyaev-Zel'dovich Effect with Projected Fields: A Novel

Probe of the Baryon Distribution with *Planck*, *WMAP*, and *WISE* Data" (2016). *Phys. Rev. Lett.*, 117, 051301, arXiv:1603.01608 [astro-ph.CO].

10. M. H. Abitbol, **J. C. Hill**, and B. R. Johnson. "Foreground-Induced Biases in CMB Polarimeter Self-Calibration" (2016). *MNRAS*, 457, 1796, arXiv:1512.06834 [astro-ph.CO].

11. S. E. Clark, **J. C. Hill**, J. E. G. Peek, M. E. Putman, and B. L. Babler. "Neutral hydrogen structures trace dust polarization angle: Implications for cosmic microwave background foregrounds" (2015). *Phys. Rev. Lett.*, 115, 241302, arXiv:1508.07005 [astro-ph.CO]. —Highlighted as *Phys. Rev. Lett.* Editors' Suggestion

12. **J. C. Hill**, N. Battaglia, J. Chluba, S. Ferraro, E. Schaan, and D. N. Spergel. "Taking the Universe's Temperature with Spectral Distortions of the Cosmic Microwave Background" (2015). *Phys. Rev. Lett.*, 115, 261301, arXiv:1507.01583 [astro-ph.CO].

13. J. Liu and **J. C. Hill**. "Cross-Correlation of Planck CMB Lensing and CFHTLenS Galaxy Weak Lensing Maps" (2015). *Phys. Rev. D*, 92, 063517, arXiv:1504.05598 [astro-ph.CO].

14. N. Battaglia, **J. C. Hill**, and N. Murray. "Deconstructing Thermal Sunyaev-Zel'dovich – Gravitational Lensing Cross-Correlations: Implications for the Intracluster Medium" (2015). *ApJ*, 812, 154, arXiv:1412.5593 [astro-ph.CO].

15. **J. C. Hill**, B. D. Sherwin, K. M. Smith, et al. "The Atacama Cosmology Telescope: A Measurement of the Thermal Sunyaev-Zel'dovich One-Point Probability Distribution Function" (2014). *Phys. Rev. D* submitted, arXiv:1411.8004 [astro-ph.CO].

16. J. P. Greco, **J. C. Hill**, D. N. Spergel, and N. Battaglia. "The Stacked Thermal Sunyaev-Zel'dovich Signal of Locally Brightest Galaxies in Planck Full Mission Data: Evidence for Galaxy Feedback?" (2015). *ApJ*, 808, 151, arXiv:1409.6747 [astro-ph.CO].

17. R. Flauger, **J. C. Hill**, and D. N. Spergel. "Toward an Understanding of Foreground Emission in the BICEP2 Region" (2014). *JCAP*, 08, 039, arXiv:1405.7351 [astro-ph.CO].

18. **J. C. Hill** and D. N. Spergel. "Detection of Thermal SZ – CMB Lensing Cross-Correlation in Planck Nominal Mission Data" (2014). *JCAP*, 02, 030, arXiv:1312.4525 [astro-ph.CO].

19. **J. C. Hill** and E. Pajer. "Cosmology from the Thermal Sunyaev-Zel'dovich Power Spectrum: Primordial non-Gaussianity and Massive Neutrinos" (2013). *Phys. Rev. D*, 88, 063526, arXiv:1303.4726 [astro-ph.CO].

20. **J. C. Hill** and B. D. Sherwin. "Cosmological Constraints from Moments of the Thermal Sunyaev-Zel'dovich Effect" (2013). *Phys. Rev. D*, 87, 023527, arXiv:1205.5794 [astro-ph.CO].

Co-led papers with significant contribution:

1. M. H. Abitbol, J. Chluba, **J. C. Hill**, and B. R. Johnson. "Prospects for Measuring Cosmic Microwave Background Spectral Distortions in the Presence of Foregrounds" (2017). *MNRAS*, 471, 1126, arXiv:1705.01534 [astro-ph.CO].
2. J. Liu, A. Ortiz-Vazquez, and **J. C. Hill**. "Constraining Multiplicative Bias in CFHTLenS Weak Lensing Shear Data" (2016). *Phys. Rev. D*, 93, 103508, arXiv:1601.05720 [astro-ph.CO].
3. M. J. Wilson, B. D. Sherwin, **J. C. Hill**, et al. "The Atacama Cosmology Telescope: A Measurement of the Thermal Sunyaev-Zel'dovich Effect Using the Skewness of the CMB Temperature Distribution," (2012). *Phys. Rev. D*, 86, 122005, arXiv:1203.6633 [astro-ph.CO].
4. M. E. C. Swanson, M. Tegmark, A. J. S. Hamilton, and **J. C. Hill**. "Methods for Rapidly Processing Angular Masks of Next-Generation Galaxy Surveys" (2008). *MNRAS*, 387, 1391, arXiv:0711.4352 [astro-ph].

Other papers with some contribution:

1. J. Liu, S. Bird, J. M. Z. Matilla, **J. C. Hill**, Z. Haiman, M. S. Madhavacheril, A. Petri, and D. N. Spergel. "MassiveNuS: Cosmological Massive Neutrino Simulations" (2017). *JCAP* submitted, arXiv:1711.10524 [astro-ph.CO].
2. W. R. Coulton, et al. "Non-Gaussianity of Secondary Anisotropies from ACTPol and Planck" (2017). *JCAP* submitted, arXiv:1711.07879 [astro-ph.CO].
3. B. D. Sherwin, et al. "The Atacama Cosmology Telescope: Two-Season ACTPol Lensing Power Spectrum" (2016). *Phys. Rev. D*, 95, 123529, arXiv:1611.09753 [astro-ph.CO].
4. T. Louis, et al. "The Atacama Cosmology Telescope: Two-Season ACTPol Spectra and Parameters" (2017). *JCAP*, 06, 031, arXiv:1610.02360 [astro-ph.CO].
5. F. de Bernardis, et al. "Detection of the pairwise kinematic Sunyaev-Zel'dovich effect with BOSS DR11 and the Atacama Cosmology Telescope" (2017). *JCAP*, 03, 008, arXiv:1607.02139 [astro-ph.CO].
6. E. Schaan, et al. "Evidence for the Kinematic Sunyaev-Zel'dovich Effect with ACTPol and Velocity Reconstruction from BOSS" (2016).

Phys. Rev. D, 93, 082002, arXiv:1510.06442 [astro-ph.CO].

7. D. Crichton, et al. "Evidence for the Thermal Sunyaev-Zel'dovich Effect Associated with Quasar Feedback" (2015). *MNRAS*, 458, 1478, arXiv:1510.05656 [astro-ph.CO].
8. N. Battaglia, et al. "Weak-Lensing Mass Calibration of the Atacama Cosmology Telescope Equatorial Sunyaev-Zel'dovich Cluster Sample with the Canada-France-Hawaii Telescope Stripe 82 Survey" (2016). *JCAP*, 08, 013, arXiv:1509.08930 [astro-ph.CO].
9. M. S. Madhavacheril, et al. "The Atacama Cosmology Telescope: Detection of Lensing of the Cosmic Microwave Background by Dark Matter Halos" (2015). *Phys. Rev. Lett.*, 114, 151302, arXiv:1411.7999 [astro-ph.CO].
10. A. van Engelen, et al. "The Atacama Cosmology Telescope: Lensing of CMB Temperature and Polarization Derived from Cosmic Infrared Background Cross-Correlation" (2015). *ApJ*, 808, 7, arXiv:1412.0626 [astro-ph.CO].
11. E. Calabrese, et al. "Precision Epoch of Reionization Studies with Next-Generation CMB Experiments" (2014). *JCAP*, 08, 010, arXiv:1406.4794 [astro-ph.CO].
12. S. K. Naess, et al. "The Atacama Cosmology Telescope: CMB Polarization at $200 < \ell < 9000$" (2014). *JCAP* 10, 007, arXiv:1405.5524 [astro-ph.CO].
13. J. L. Sievers, et al. "The Atacama Cosmology Telescope: Cosmological Parameters from Three Seasons of Data" (2013). *JCAP*, 10, 060, arXiv:1301.0824 [astro-ph.CO].
14. B. D. Sherwin, et al. "The Atacama Cosmology Telescope: Cross-Correlation of CMB Lensing and Quasars" (2012). *Phys. Rev. D*, 86, 083006, arXiv:1207.4543 [astro-ph.CO].
15. E. D. Reese, et al. "The Atacama Cosmology Telescope: High-Resolution Sunyaev-Zel'dovich Array Observations of ACT SZE-selected Clusters from the Equatorial Strip" (2012). *ApJ*, 751, 12, arXiv:1108.3343 [astro-ph.CO].

Conference proceedings / White papers:

1. K. N. Abazajian, et al. "CMB-S4 Science Book, First Edition" (2016). arXiv:1610.02743 [astro-ph.CO].
2. S. E. Clark, J. E. G. Peek, **J. C. Hill**, and M. E. Putman. "Quantifying the Magnetic Alignment of HI and Dust in the Diffuse ISM" (2016). *Proceedings of the International Astronomical Union — From Interstellar Clouds to Star-Forming Galaxies: Universal Processes?*, 315, E13.

3. **J. C. Hill**. "The Sunyaev-Zel'dovich Effect and Large-Scale Structure" (2015). *Proceedings of the XIth Rencontres du Vietnam – Cosmology: 50 Years After CMB Discovery*, Quy Nhon, Vietnam, August 16-22, 2015, `arXiv:1510.06237 [astro-ph.CO]`.

TALKS

"Fundamental Physics from the CMB: Neutrino Masses and Inflation"
Physics Colloquium, February 2018, University of Hawaii, Honolulu, HI

"Modeling CMB Secondary Anisotropies: Critical Aspects for Next-Generation Surveys"
Invited Talk, Extragalactic Sky Modeling Workshop, January 2018, UC-Berkeley, Berkeley, CA

"Extragalactic Foreground Modeling"
Invited Talk, CMB Foreground Workshop, November 2017, UC-San Diego, San Diego, CA

"Multi-Tracer CMB Delensing"
Invited Talk, B-Modes from Space Workshop, December 2017, UC-Berkeley, Berkeley, CA

"CMB Foregrounds: Problems, Parametrizations, and Progress"
Invited Talk, TeV Particle Astrophysics (TeVPA) Conference, August 2017, Ohio State University, Columbus, OH
Invited Talk, Nonlinear Universe Workshop, July 2017, Smartno, Slovenia

"New Information in Ancient Photons: Novel Approaches to CMB Secondary Anisotropies"
Center for Computational Astrophysics Colloquium, February 2018, Flatiron Institute, New York, NY
Astrophysics Seminar, February 2018, Rutgers University, New Brunswick, NJ
Informal Astrophysics Seminar, January 2018, Institute for Advanced Study, Princeton, NJ
Astrophysics Seminar, November 2017, University of Oxford, Oxford, UK
Cosmology Seminar, October 2017, University of Minnesota, Minneapolis, MN
CCPP Seminar, April 2017, New York University, New York, NY
Physics Colloquium, February 2017, McGill University, Montreal, QC
Cosmology Lunch Talk, December 2016, Institute for Advanced Study, Princeton, NJ
Institute for Nuclear and Particle Astrophysics Seminar, November 2016, Lawrence Berkeley National Laboratory, Berkeley, CA
Astronomy Journal Club Talk, October 2016, University of Pennsylvania, Philadelphia, PA

"CMB Spectral Distortions"
Invited Talk, NRAO Futures II Conference, August 2016, Baltimore, MD

"CMB Spectral Distortions from the Low-z Universe"
Invited Talk, CMB Spectral Distortions From Cosmic Baryon Evolution Workshop, July 2016, Raman Research Institute, Bangalore, India

"New Information in Old Photons: CMB Secondary Anisotropies"
Invited Talk, Cosmological Probes of Fundamental Physics Workshop, June 2016, Weizmann Institute of Science, Rehovot, Israel

"Kinematic and Thermal SZ Cross-Correlations with LSST, AdvACT, and CMB-S4"
LSST Cross-Correlation Spectacular Workshop, May 2016, Brookhaven National Laboratory, Upton, NY

"More Is Different: The Power of Multi-Probe CMB/LSS Cross-Correlations"
KICP Seminar, April 2016, University of Chicago, Chicago, IL
HEP/Cosmology Seminar, April 2016, Argonne National Laboratory, Lemont, IL

"Kinematic Sunyaev-Zel'dovich Detection with Projected Fields"
Journal-Club Univers, April 2016, Institut d'Astrophysique de Paris, Paris, France

"The Sunyaev-Zel'dovich Effect and Large-Scale Structure"
Invited Talk, *XIth Rencontres du Vietnam: Cosmology 50 Years After CMB Discovery*, August 2015, International Centre for Interdisciplinary Science and Education, Quy Nhon, Vietnam
Astroparticule et Cosmologie (APC) Seminar, October 2015, Université Paris Diderot, Paris, France

"Planck and CFHTLenS: Cross-Correlation of Thermal Sunyaev-Zel'dovich, CMB Lensing, and Galaxy Weak Lensing Maps"
Astronomy Journal Club Talk, May 2015, University of Pennsylvania, Philadelphia, PA

"Cosmology from the One-Point Probability Distribution Function"
Center for Astrophysical Sciences Seminar, February 2015, Johns Hopkins University, Baltimore, MD
Contributed Talk, *Computing the Universe*, January 2015, UC-Berkeley, Berkeley, CA

"Toward an Understanding of Foreground Emission in the BICEP2 Region"
ISCAP Seminar, September 2014, Columbia University, New York, NY

"Detection of Thermal SZ – CMB Lensing Cross-Correlation with Planck"
Invited Talk, *Cross-correlations in the high-redshift sky*, June 2014, Univer-

sity College London, London, UK

"New Constraints on the Amplitude of Cosmic Density Fluctuations and Intracluster Gas from the Thermal SZ Signal Measured by Planck and ACT"
Contributed Talk, *Clusters Paris 2014*, June 2014, L'Observatoire de Paris, Paris, France
Dissertation Talk, 223rd Meeting of the American Astronomical Society, January 2014, Washington, D.C.
Berkeley/LBNL Cosmology Seminar, November 2013, UC-Berkeley, Berkeley, CA
KIPAC Seminar, November 2013, Stanford University, Stanford, CA
Center for Astrophysical Sciences Seminar, November 2013, Johns Hopkins University, Baltimore, MD
Cosmology Seminar, November 2013, Perimeter Institute for Theoretical Physics, Waterloo, ON
CITA Seminar, November 2013, Canadian Institute for Theoretical Astrophysics, Toronto, ON
ITC Seminar, November 2013, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA
Astrophysics Lunch Talk, November 2013, MIT, Cambridge, MA
Cosmology Seminar, October 2013, Yale University, New Haven, CT
Astronomy Department Seminar, September 2013, Columbia University, New York, NY
Wednesday Lunch Seminar, September 2013, Princeton University, Princeton, NJ

"Cosmology from tSZ Statistics"
Invited Talk, *Cosmology in the Planck Era*, June 2013, Princeton University, Princeton, NJ

"Cosmology (and the ICM) from Compton-y"
Contributed Talk, *Cosmology Beyond the Power Spectrum*, April 2013, UC-Berkeley, Berkeley, CA

"Cosmological Constraints from Moments of the Thermal SZ Effect"
Berkeley/LBNL Cosmology Seminar, August 2012, UC-Berkeley, Berkeley, CA
Contributed Talk, PCTS Galaxy Cluster Workshop, April 2012, Princeton University, Princeton, NJ
Wednesday Lunch Seminar, April 2012, Princeton University, Princeton, NJ

"Do We Live in a Void? Testing via the kSZ Effect"
Contributed Talk, *Summer School on Cosmology*, July 2010, International Centre for Theoretical Physics, Trieste, Italy
Cosmology Seminar, June 2010, Oxford University, Oxford, UK

Posters

"The Atacama Cosmology Telescope: A Measurement of the Thermal Sunyaev-Zel'dovich One-Point Probability Distribution Function"
Closing in on the Cosmological Model, March 2015, Aspen, CO
Planck 2014: The Microwave Sky in Temperature and Polarization, December 2014, Ferrara, Italy

"Observing Primordial non-Gaussianity via the Thermal Sunyaev-Zel'dovich Effect"
Essential Cosmology for the Next Generation, January 2012, Cancun, MX
awarded prize for best poster at conference

"Do We Live in a Void? Testing via the kSZ Effect"
The Cosmic Enigma: Cosmology and Particle Astrophysics, June 2010, University College London, London, UK

"The Mass Function of Nearby Galaxy Clusters: Cosmological Constraints"
211$^{\text{th}}$ Meeting of the American Astronomical Society, January 2008, Austin, TX

Teaching Experience

Teaching Assistant: General Relativity (Princeton Astro 301), Fall 2011
Grader: Relativity (MIT 8.033), Fall 2006

Students Supervised

Johnny Greco (graduate student, Princeton): co-advisor with David Spergel on "The Stacked Thermal SZ Signal of Locally Brightest Galaxies in Planck Full Mission Data: Evidence for Galaxy Feedback?" (`arXiv:1409.6747 [astro-ph.CO]`).

Jia Liu (graduate student, Columbia): co-advisor with Zoltán Haiman on several projects, including:

- "Cross-Correlation of Planck CMB Lensing and CFHTLenS Galaxy Weak Lensing Maps" (`arXiv:1504.05598 [astro-ph.CO]`)
- "Constraining Multiplicative Bias in CFHTLenS Weak Lensing Shear Data" (`arXiv:1601.05720 [astro-ph.CO]`)
- "CMB Lensing Beyond the Power Spectrum: Cosmological Constraints from the One-Point PDF and Peak Counts" (`arXiv:1608.03169 [astro-ph.CO]`)

Susan Clark (graduate student, Columbia): co-advisor with Josh Peek and Mary Putman on "Neutral hydrogen structures trace dust polarization angle: Implications for cosmic microwave background foregrounds" (`arXiv:1508.07005 [astro-ph.CO]`).

Maximilian Abitbol (graduate student, Columbia):

- Co-advisor with Bradley Johnson on "Foreground-Induced Biases in CMB Polarimeter Self-Calibration" (arXiv:1512.06834 [astro-ph.CO])
- Primary advisor on "Prospects for Measuring Cosmic Microwave Background Spectral Distortions in the Presence of Foregrounds" (2017). (arXiv:1705.01534 [astro-ph.CO])

Alvaro Ortiz-Vazquez (undergraduate student, Columbia): advisor on summer research project "Constraining Multiplicative Bias in CFHTLenS Weak Lensing Shear Data" (arXiv:1601.05720 [astro-ph.CO]).

Outreach

"Dust, Distortions, and Shadows in the Universe's Oldest Light"
cover article for Spring 2015 issue of Sigma Pi Sigma *Radiations*
http://www.sigmapisigma.org/sigmapisigma/radiations/spring-2015

"Galaxy Clusters and the Sunyaev-Zel'dovich Effect"
outreach talk to students in undergraduate summer research program
June 2012, Princeton University, Princeton, NJ

Professional Activities

Workshop Co-organizer: The Nonlinear Universe 2018, July 2018, Smartno, Slovenia
http://bccp.berkeley.edu/2018-non-linear-universe/
Workshop Co-organizer: Neutrinos and Light Particles in Cosmology, June 2016, UC Berkeley, Berkeley, CA
http://bccp.berkeley.edu/neutrinocosmology2016/

Referee for: *Physical Review Letters*, *Physical Review D*, *The Astrophysical Journal*, *Monthly Notices of the Royal Astronomical Society*, *Journal of Cosmology and Astroparticle Physics*, *Astronomy & Astrophysics*, *Physics Letters B*

NASA Panel Reviewer: NESSF Proposals (2017, 2018)

American Astronomical Society Member
American Physical Society Member

Princeton Astrophysics "Wunch" (Wednesday Lunch) Seminar Organizer 2010-11
MIT Society of Physics Students: President (2007-8); Secretary (2006-7)

References

David N. Spergel, Princeton University dns@astro.princeton.edu
Zoltán Haiman, Columbia University zoltan@astro.columbia.edu
James G. Bartlett, Université Paris Diderot bartlett@apc.univ-paris7.fr
Bhuvnesh Jain, University of Pennsylvania bjain@physics.upenn.edu