ChangHoon Hahn

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RESEARCH INTERESTS

observational cosmology: large-scale structure, cosmological neutrinos, dark energy, dark matter, higher-order statistics, spectroscopic surveys

galaxy formation/evolution: star formation quenching, galaxy–halo connection, spectral energy distribution, cosmological simulations

statistical methods: likelihood-free inference, emulation, hierarchical Bayesian models, data compression, machine learning

POSITION

2017 —	**Lawrence Berkeley National Laboratory** and **Berkeley Center for Cosmological Physics**
	Cosmology Postdoctoral Fellow

EDUCATION

May 2017	*Ph.D.* in Physics, **New York University**
	Advisors : Michael R. Blanton and Roman Scoccimarro
	Thesis : *Galaxies and their Host Dark Matter Structures*
May 2011	*B.Sc.* in Astrophysics, **Rutgers University**
	Advisors : Andrew J. Baker and Jerry A. Sellwood

SCENTIFIC COLLABORATIONS

Dark Energy Spectroscopic Survey (DESI)		2017–
Co-chair	Bright Galaxy Survey	
member	DESI Science Committee	
working groups	Galaxy Quasar Clustering, Galaxy Quasar Physics	
	Time Domain Science, Peculiar Velocity	
Sloan Digital Sky Survey (SDSS)		2011–
member	SDSS-IV: extended-Baryon Oscillation Spectroscopic Survey	
member	SDSS-III: Baryon Oscillation Spectroscopic Survey	
PRIsm MUlti-object Survey (PRIMUS)		2011-2017

PUBLICATIONS

total: 19 — first author: 9 — major (2nd or 3rd) author: 5

19. **Hahn, C.**; Tinker, J.; Wetzel, A. *Constraining Star Formation Histories of Blue Galaxies using the Scatter between Stellar Mass and Halo Mass* ApJ submitted, *2019* (arXiv:1910.01644).

18. **Hahn, C.**; Villaescusa-Navarro, F.; Castorina, E.; Scoccimarro R. *Constraining M_ν with the Bispectrum I: Breaking Parameter Degeneracies* JCAP submitted, *2019* (arXiv:1909.11107).

17. Giusarma, E.; Reyes, M.; Villaescusa-Navarro, F.; He, S.; Ho, S; **Hahn, C.** *Learning neutrino effects in Cosmology with Convolutional Neural Networks* ApJ submitted, *2019* (arXiv:1910.04255).

16. Villaescusa-Navarro, F.; **Hahn, C.**; Massara, E.; Banerjee, A.; Delgado, A. *et al.The Quijote Simulation* *2019* (arXiv:1909.05273).

15. **Hahn, C.**; Beutler, F.; Sinha, M.; Berlind, A.; Ho, S.; Hogg, D. W. *Likelihood Non-Gaussianity in Large-Scale Structure Analyses* MNRAS, 485, 2956, *2019* (arXiv:1803.06348).

14. **Hahn, C.**; Starkenburg, T.; Choi, E.; Davé, R.; Dickey, C.; Geha, M. *et al.* *IQ-Collaboratory 1.1: the Star-Forming Sequence of Simulated Central Galaxies* ApJ, 872, 160 *2019* (arXiv:1803.06348).

13. Vakili, M.; **Hahn, C.** *How are galaxies assigned to halos? Searching for assembly bias in the SDSS galaxy clustering* ApJ, 872, 115, *2019* (arXiv:1610.01991).

12. Tinker, J.; **Hahn, C.**; Mao, Y.; Wetzel, A. *Halo Histories versus Galaxy Properties at z=0, III: The Properties of Star-Forming Galaxies* MNRAS, 478, 4487, *2018* (arXiv:1705.08458).

11. Tinker, J.; **Hahn, C.**; Mao, Y.; Wetzel, A.; Conroy, C. *Halo Histories versus Galaxy Properties at z=0, II: Large-Scale Galactic Conformity* MNRAS, 477, 935, *2018* (arXiv:1702.01121).

10. **Hahn, C.**; Tinker, J.; Wetzel, A. *Star Formation Quenching Timescale of Central Galaxies in a Hierarchical Universe* ApJ, 841, 6, *2017* (arXiv:1609.04398).

9. Blanton, M. *et al.* (incl. **Hahn, C.**) *Sloan Digital Sky Survey IV: Mapping the Milky Way, Nearby Galaxies, and the Distant Universe* AJ, 154, 28, *2017* (arXiv:1703.00052).

8. **Hahn, C.**; Vakili M.; Walsh, K.; Hearin, A.; Hogg, D. W.; Campbell, D. *Approximate Bayesian Computation in Large Scale Structure: Constraining the Galaxy-Halo Connection* MNRAS, 469, 2791, *2017* (arXiv:1607.01782).

7. Vakili, M. *et al.* (incl. **Hahn, C.**) *Accurate halo-galaxy mocks from automatic bias estimation and particle mesh gravity solvers* MNRAS, 472, 4144, *2017* (arXiv:1701.03765).

6. **Hahn, C.**; Scoccimarro, R.; Blanton, M.; Tinker, J.; Rodríguez-Torres, S. *The Effect of Fiber Collisions on the Galaxy Power Spectrum Multipole* MNRAS, 467, 1940, *2017* (arXiv:1609.01714).

5. Rodríguez-Torres, S. *et al.* (incl. **Hahn, C.**) *Clustering of Quasars in the First Year of the SDSS-IV eBOSS survey: Interpretation and halo occupation distribution* MNRAS, 468, 728, *2017* (arXiv:1612.06918).

4. Zhai, Z.; Tinker, J.; **Hahn, C.** *et al.* *The Clustering of Luminous Red Galaxies at z ∼ 0.7 from eBOSS and BOSS Data* ApJ, 848, 2, *2017* (arXiv:1607.05383).

3. Rodríguez-Torres, S.*et al.* (incl. **Hahn, C.**) *The clustering of galaxies in the SDSS-III Baryon Oscillation Spectroscopic Survey: modelling the clustering and halo occupation distribution of BOSS CMASS galaxies in the Final Data Release* MNRAS, 460, 1173, *2016* (arXiv:1509.06404).

2. **Hahn, C.**; Blanton, M.; Moustakas, J.; Coil, A.; Cool, R.; Eisenstein, D. *et al.* *PRIMUS: Effects of Galaxy Environment on the Quiescent Fraction at z < 0.8* ApJ, 806, 162, *2015* (arXiv:1412.7162).

1. **Hahn, C.**; Sellwood, J.; Pryor C. *Velocity-space substructure from nearby RAVE and SDSS stars* MNRAS, 418, 2459, *2011* (arXiv:1102.4626).

Awards and Honors

2016	Dean's Dissertation Fellowship	New York University
2015	James Arthur Graduate Fellowship	New York University
2011	Henry M. MacCracken Fellowship	New York University
2011	Paul Robeson Scholar	Rutgers University

Service and Leadership

(OC: organizing committee)

Co-chair	DESI Bright Galaxy Survey Working Group	2019 –
OC chair	LBL/BCCP conference, UC Berkeley, CA	2020
OC	Likelihood-Free Inference workshop, Flatiron Institute, NYC	2019

OC	Berkeley Lab Institute for Nuclear and Particle Astrophysics Seminar	2019 –
Co-chair	LBNL/BCCP DESI lunch seminar	2018 –
Chair	NYU CCPP Astro Coffee	2014 - 2017
Referee	Monthly Notices of the Royal Astronomical Society	
	Future Investigators in NASA Earth and Space Science and Technology grant	2019
	AAS Chambliss Award	2017

Selected Talks

(*: invited)

[2019]	KICP Chicago	Oct
	CPAC seminar, Argonne National Lab	Oct
	DESI Time Domain Hack, Fermilab	Oct
	Cosmic Controversies, KICP Chicago	Oct
	*DESI Comissioning and Survey Validation workshop, NOAO AZ	Sep
	DESI Collaboration meeting, Berkeley Lab	Jul
	Cosmology × Data Group meeting, NYU CCPP	May
[2018]	*Isolated and Quenched Galaxies Workshop, Flatiron Institute NYC	Dec
	DESI Collaboration Meeting, Tuscon AZ	May
	Cosmology × Data Group meeting, Flatiron Institute NYC	Feb
[2017]	Isolated and Quenched Galaxies Workshop, Flatiron Institute NYC	Sep
	*CCAPP seminar, The Ohio State University	Feb
	*seminar, Argonne National Lab	Jan
	American Astronomical Society 229, Grapevine TX	Jan
[2016]	*RPM seminar, Berkeley Lab	Dec
	Galaxy group meeting, Yale University	Oct
	Seminar, Universidad Nacional de Colombia, Bogota COL	Jun
	Brownbag Lunch, NYU CCPP	Apr
[2015]	SDSS Collaboration Meeting, Madrid ESP	Jul
	Multi-Object Spectroscopy in the Next Decade, Canary Islands ESP	Feb
[2014]	BOSS+eBOSS Collaboration Meeting, Cloudcroft NM	Dec
	Evolving Galaxies in Evolving Environments, Bologna ITA	Sep

Research Advising

Graduate students		
Massimo Pascale	*UC Berkeley*	2019 –
Undergraduate students		
Patrick Staudt	*Rutgers University*	2017 –
James Zhu	*UC Berkeley*	2019 –
Arin Avsar	*UC Berkeley*	2019 –

Outreach

2018 –	UC Berkeley Astro Night
2018	Berkeley Lab Exploration of New Discoveries (BLEND): Big Data
2017 –	Berkeley Lab In School Settings (BLISS) outreach program
2017	Represented SDSS-IV at AAS 229
2017	Intrepid Museum Kids Week Meet the Scientist event
2016	Appeared in hit podcast *Tell Me Something I Don't Know* Episode 10
2015	Represented SDSS at NY Hall of Science Big Data Fest

References

Prof. Michael R. Blanton
  michael.blanton@nyu.edu
  Center for Cosmology and Particle Physics, New York University

Dr. David Schlegel
  djschlegel@lbl.gov
  Lawrence Berkeley National Laboratory, Berkeley

Prof. Jeremy L. Tinker
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