Samuel Goldstein

Email : sjg2215@columbia.edu

EDUCATION

Columbia University New York, NY
> **Ph.D. Physics (expected)** | *GPA 4.00/4.00* *Sep. 2022-present*

University of Pennsylvania Philadelphia, PA
> **M.S. Physics & Astronomy** | *GPA 4.00/4.00* *Sep. 2017-May 2021*
> **B.A. Physics, Mathematics** | *Summa cum laude, honors thesis, GPA 3.99/4.00*

LONG TERM RESEARCH VISITS

Max Planck Institute for Astrophysics Garching, Germany
> Guest in the physical cosmology group funded by a Fulbright scholarship. *Sep. 2021-Aug. 2022*

Brookhaven National Laboratory Upton, NY
> Intern in the cosmology group as part of the Department of Energy SULI program. *June 2018-Aug. 2018*

PUBLICATIONS

Main author

– **S. Goldstein**, J. C. Hill, V. Iršič, and B. D. Sherwin. "Canonical Hubble-Tension-Resolving Early Dark Energy Cosmologies are Incon- sistent with the Lyman-α Forest" (2023). *Phys. Rev. Lett.* submitted, `arXiv::2303.00746`.

– **S. Goldstein**, A. Esposito, O. H. E. Philcox, L. Hui, J. C. Hill, R. Scoccimarro, and M. H. Abitbol. "Squeezing f_{NL} out of the matter bispectrum with consistency relations" (2022). *Phys. Rev. D,* 106, 123525, `arXiv:2209.06228`
   – Awarded First Prize in 2022 Buchalter Cosmology Prize Competition

– **S. Goldstein**, M. Park, M. Raveri, B. Jain, L. Samushia. "Beyond dark energy Fisher forecasts: how DESI will constrain ΛCDM and quintessence models" (2022). *Phys. Rev. D* 107, 063530 `arXiv:2207.01612`

– **S. Goldstein**, S. Pandey, A. Slosar, J. Blazek, B. Jain. "Perturbation theory models for LSST-era galaxy clustering: tests with sub-percent mock catalog measurements in Fourier and configuration space" (2022). *Phys. Rev. D* 105, 123518, `arXiv:2111.00501`

Contributing author

– T. Dacunha, M. Belyakov, S. Adhikari, T. Shin, **S. Goldstein**, B. Jain. "Connecting galaxy evolution in clusters with their radial profiles and phase space distribution: results from the IllustrisTNG hydrodynamical simulations" (2022). *MNRAS* 512, 3, 4378, `arXiv:2111.06499`

– T. Shin et al. "The mass and galaxy distribution around SZ-selected clusters" (2021). *MNRAS*, 504, 4, 5758 `arXiv:2105.05914`

AWARDS AND HONORS

Buchalter Cosmology Prize (First Prize)	2022
Fulbright Scholar	2021
William E. Stephens Memorial Prize	2021
Goldwater Scholar	2020
Phi Beta Kappa	2020
Dean's List (not offered during COVID)	2017-2020
US Department of Energy SULI Grant	2019
Penn Undergraduate Research Mentorship Fellowship	2018
Eagle Scout	2016

Presentations

Talks

>**Penn Cosmology Meeting**, "Squeezing f_{NL} out of mater bispectrum with consistency relations," March 2023

>**Berkeley Center for Cosmological Physics Vipolže Workshop**, "Reconstructing quintessence with DESI," July 2022

>**Max Planck Institute for Astrophysics Institute Seminar**, "Constraining quintessence and k-essence models of dark energy," June 2022

>**Penn Center for Undergraduate Research and Fellowships: Dipping into Data Science**, "Using statistics to model the relationship between galaxies and dark matter," November 2020

>**Galaxy-Halo Connection Across Cosmic Time Reunion Conference**, "Analyzing baryonic effects on halo density profiles in IllustrisTNG," August 2020

>**LSST DESC Virtual Meeting**, "Modeling non-linear galaxy bias in CosmoDC2 simulations," July 2020

>**Brookhaven National Lab Physics Department Selected Intern Presentations**, Upton, NY. "Modeling non-linear galaxy bias in preparation for the LSST," August 2019

Posters

>**Brookhaven National Lab SULI Research Fair**, Upton, NY. "Modeling non-linear galaxy bias in preparation for the LSST," August 2019

>**Ivy League Undergraduate Research Symposium**, Philadelphia, PA. "Identifying jets from boosted particles using center of mass reconstruction techniques," April 2019

>**University of Pennsylvania Fall Research Expo**, Philadelphia, PA. "Identifying jets from boosted particles using center of mass reconstruction techniques," August 2018

Professional activities

Referee
>*MNRAS* (2023–)

Teaching and Outreach

Reading Team Math   Columbia University
>*Volunteer weekly to teach math to elementary school student in Harlem*   *Sep. 2022 - Present*

Graduate Teaching Assistant   Columbia University
>*Courses: General Physics I and II Lab*   *Sep. 2022 - Present*

College Tutor   University of Pennsylvania
Part-time tutor at Penn's Tutoring Center   *Jan. 2019 - May 2021*

>Courses Tutored: *Multivariable calculus, linear algebra, ODEs, PDEs, mathematical foundations of computer science*

Research Peer Advisor   University of Pennsylvania
Advisor at Penn's Center for Undergraduate Research and Fellowships   *Aug. 2018 - May 2021*

Technical Skills

Programming: Python, C, Git, BASH, LaTeX, Mathematica, MPI
Data Analysis/Codes: MCMC, Bayesian statistics, `CLASS`, `MontePython`, `CosmoMC/CAMB`