

## David Hal Weinberg

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### Academic Appointments

#### *Long Term Positions:*

Astronomy Department Chair, Ohio State University	2015 –
Distinguished University Professor, OSU	2017 –
Distinguished Professor of Mathematical and Physical Sciences, OSU	2008 – 2017
Henry L. Cox Professor of Astronomy, OSU	2013 – 2018
Professor of Astronomy, OSU	2002 –
Associate Professor of Astronomy, OSU	1998 – 2002
Assistant Professor of Astronomy, OSU	1995 – 1998
Long-Term Member, Institute for Advanced Study	1992 – 1994
Miller Research Fellow, U.C. Berkeley	1990 – 1991
NATO Postdoctoral Fellow, Cambridge University	1989 – 1990

#### *Visiting Positions*

Miller Visiting Professor, UC Berkeley, May 2022	
Visiting Member, Institute for Advanced Study, in 2001-2002, 2006, 2009-2010, 2020-2021	
Visiting Researcher, Institut d'Astrophysique de Paris, most summers since 2003	
Chercheur Associé, “Post-Rouge,” Institut d'Astrophysique de Paris	3/02 – 7/02

### Education

Princeton University, Princeton, New Jersey

Ph.D. in Astrophysics, October 1989

Thesis Advisor: James E. Gunn

Yale University, New Haven, Connecticut

B.S. in Physics, *summa cum laude*, phi beta kappa, distinction in physics, 1985

### Fellowships and Honors

National Academy of Sciences (elected 2023)

Dannie Heineman Prize (shared with Robert Lupton), AAS and AIP 2021

John Bahcall Memorial Lecturer, Tel Aviv University 2019

Distinguished University Professor, Ohio State University 2017

AAS Lancelot M. Berkeley – New York Community Trust Prize 2015

Fellow of the American Association for the Advancement of Science (elected 2009)

Ohio State University Distinguished Scholar Award 2006

Fellow of the American Physical Society (elected 2001)

Princeton University:

Porter Ogden Jacobus Fellow 1988–1989

Ray Grimm Memorial Prize in Computational Physics 1989

National Science Foundation Graduate Fellow 1985–1988

Pierce Prize in Astrophysics 1985–1986

Yale University:

George Beckwith Award for excellence in astronomy 1985

DeForrest Pioneers Award for creative achievement in physics 1985

## Miscellaneous

Sloan Digital Sky Survey: SDSS-III Project Scientist (2007 – 2014), SDSS-II Scientific Spokesperson (2005 – 2009), SDSS-IV Steering Committee/AC Executive Committee (2011 – 2015), SDSS-V Steering Committee/AC Executive Committee (2016 – ), SDSS-IV Ombudsperson (2015 – 2022), OSU Advisory Council Representative (2005 – ), Scientific Publications Coordinator (1999 – 2002)

Nancy Grace Roman Space Telescope (a.k.a. WFIRST): WFIRST Science Definition Team (2011 – 2012), AFTA-WFIRST Science Definition Team (2012 – 2015), High-Latitude Survey Cosmology Team and WFIRST Formulation Science Working Group (2016 – 2022)

Dark Energy Spectroscopic Instrument: Co-Chair of DESI Bright Galaxy Survey Working Group (2014 – 2019)

Dark Energy Survey: Member of DES Advisory Board (2016 – ; appointed co-chair in 12/2020)

NASA Senior Review 2022

National Academies 2020 Decadal Review of Astronomy: Member of the “Galaxies” Science Panel  
NASA Senior Review 2019 (Chair)

National Academies Astronomy Mid-Decadal Review Committee, 2015 – 2016

Hubble Space Telescope Cycle 22 Panel Chair and TAC member, 2014

NASA Astrophysics Roadmap Team, 2013, produced *Enduring Quests, Daring Visions: NASA Astrophysics in the Next Three Decades*

National Research Council 2010 Decadal Review of Astronomy: Vice Chair of the “Cosmology and Fundamental Physics” Science Frontier Panel

NASA Astrophysics Roadmap Committee, 2004 – 2005

NASA Astronomy and Physics Working Group, 2003 – 2005

Kitt Peak Extragalactic Time Allocation Committee, 1998 – 1999

Lecturer, ICTP Advanced School in Cosmology, Trieste, 5/2016

Lecturer, U. Mass. Summer School in Computational Astrophysics, Amherst, July, 1998; July, 1999

Lecturer, Jerusalem Winter School in Theoretical Physics, “Galaxy Formation,” January, 1998

## Current Research Areas

Cosmic Acceleration and Dark Energy

Large Scale Structure

Galaxy Formation

The Intergalactic Medium

Chemical Evolution of the Milky Way and Origin of the Elements

## Mentoring

Postdoctoral advisees: Rupert Croft, James Bullock, Andrey Kravtsov, Oleg Gnedin, Francesco Shankar, Eduardo Rozo, Stelios Kazantzidis, Michael Mortonson, Ralph Schönrich, Ying Zu, Hao-Yi Wu, Fiorenzo Vincenzo

Thesis students: J. Michael Owen, Vijay Narayanan, Andreas Berlind, Zheng Zheng, Jeremy Tinker, James Pizagno, Juna Kollmeier, Jaiyul Yoo, Guangfei Jiang, Molly Peebles, Chris Orban, Vimal Simha, Jonathan Bird, Ying Zu, Brett Andrews, Joe McEwen, Benjamin Wibking, Suk Sien Tie, Andres Salcedo, Emily Griffith

## Publications Summary

Author or co-author of more than 330 articles in refereed astronomy journals, 111,000+ citations,  $h = 143$ . See <http://www.astronomy.ohio-state.edu/~dhw/topcite.html> for summary of most highly cited publications.

## **Broader Activities**

Creator of “Galaxy Formation! A Board Game” (1987).

Creator of “The Dark Matter Rap: A Cosmological History for the MTV Generation” (1992), live performance and recording.

Script consultant for “Dark Matter,” winner of the Alfred P. Sloan Prize at the 2007 Sundance Film Festival, recognizing “an outstanding feature film focusing on science or technology as a theme or depicting a scientist or mathematician as a major character.” (Film written by Billy Shebar, directed by Chen Shi-Zheng, starring Liu Ye, Aidan Quinn, and Meryl Streep.)

Scientific and design consultant for five sculptures by Josiah McElheny: *An End to Modernity* (2005), now in the collection of the Tate Modern; *The Last Scattering Surface* (2006), now in the collection of the Phoenix Art Museum; *The End of the Dark Ages* (2008), now in a private collection; *Island Universe*, commissioned by White Cube Gallery (London) and subsequently exhibited by the Reina Sophia Museum (Madrid), the Boston Institute of Contemporary Art, and the Cantor Center for the Visual Arts (Stanford University), now in the collection of the Los Angeles County Museum of Art; and *A Study for The Center is Everywhere* (2012), exhibited at the Boston Institute of Contemporary Art, now in a private collection.

Updated June 2023

## David H. Weinberg: 12 Highly Cited Publications

1. "Cosmological Simulations with TreeSPH."  
Katz, N., Weinberg, D. H., & Hernquist, L. 1996, *Astrophysical Journal Supplements*, 105, 19
2. "The Lyman-Alpha Forest in the Cold Dark Matter Model."  
Hernquist, L., Katz, N., Weinberg, D. H., & Miralda-Escudé, J. 1996, *ApJL*, 457, L51
3. "Recovery of the Power Spectrum of Mass Fluctuations from Observations of the Ly $\alpha$  Forest."  
Croft, R. A. C., Weinberg, D. H., Katz, N., & Hernquist, L. 1998, *ApJ*, 495, 44
4. "Reionization and the Abundance of Galactic Satellites."  
Bullock, J. S., Kravtsov, A. V., & Weinberg, D. H. 2000, *ApJ*, 539, 517
5. "The Halo Occupation Distribution: Toward an Empirical Determination of the Relation Between Galaxies and Mass."  
Berlind, A. A., & Weinberg, D. H. 2002, *ApJ*, 575, 587
6. "Spectroscopic Target Selection in the Sloan Digital Sky Survey: The Main Galaxy Sample."  
Strauss, M. A., Weinberg, D. H., Lupton, R. H., Narayanan, V. K., Annis, J. A., Bernardi, M., et al., (36 authors) 2002, *AJ*, 124, 1810
7. "How Do Galaxies Get Their Gas?."  
Keres, D., Katz, N., Weinberg, D. H., & Davé, R. 2005, *MNRAS*, 363, 2
8. "Self-Consistent Models of the AGN and Black Hole Populations: Duty Cycles, Accretion Rates, and the Mean Radiative Efficiency."  
Shankar, F., Weinberg, D. H., Miralda-Escudé, J. 2009, *Astrophysical Journal*, 690, 20
9. "Galaxy Clustering in the Completed SDSS Redshift Survey: The Dependence on Color and Luminosity."  
Zehavi, I., Zheng, Z., Weinberg, D. H., Blanton, M. R., Bahcall, N. A., Berlind, A. A., et al., (17 authors) 2011, *ApJ*, 736, 59
10. "SDSS-III: Massive Spectroscopic Surveys of the Distant Universe, the Milky Way Galaxy, and Extra-Solar Planetary Systems."  
Eisenstein, D. J., Weinberg, D. H., Agol, E., Aihara, H., Allende Prieto, C., Anderson, S. F., et al. (240 authors) 2011, *AJ*, 142, 72
11. "Observational Probes of Cosmic Acceleration."  
Weinberg, D. H., Mortonson, M. J., Eisenstein, D. J., Hirata, C., Riess, A. G., Rozo, E. 2013, *Physics Reports*, 530, 87-255
12. "Cosmological implications of baryon acoustic oscillation (BAO) measurements."  
Aubourg, Éric, Bailey, S., Bautista, J. E., Beutler, F., Bhardwaj, V., Bizyaev, D. et al. (99 authors), 2015, *Phys Rev D*, 9213516

## Publications: David H. Weinberg

### JOURNAL ARTICLES

Note: \* denotes articles with 150+ NASA ADS citations; among the many SDSS papers in this category, only those in which I am an analysis group author are marked.

1. "The Topology of the Large-Scale Structure of the Universe."  
Hamilton, A. J. S., Gott, J. R., & Weinberg, D. 1986, ApJ, 309, 1
2. "The Evolution of Red Clump Stars: Theoretical Sequences."  
Seidel, E., Demarque, P., & Weinberg, D. 1987, ApJ Supp, 63, 917
3. "A Quantitative Approach to the Topology of Large-Scale Structure."  
Gott, J. R., Weinberg, D. H., & Melott, A. L. 1987, ApJ, 319, 1
4. "The Topology of Large-Scale Structure. I. Topology and the Random Phase Hypothesis."  
Weinberg, D. H., Gott, J. R., & Melott, A. L. 1987, ApJ, 321, 2
5. "The Topology of Large-Scale Structure. II. Nonlinear Evolution of Gaussian Models."  
Melott, A. L., Weinberg, D. H., & Gott, J. R. 1988, ApJ, 328, 50
6. "Can Neutrinos be the Galactic Missing Mass?"  
Spergel, D. N., Weinberg, D. H., & Gott, J. R. 1988, Phys Rev D, 38, 2014
7. "Contour: A Topological Analysis Program."  
Weinberg, D. H. 1988, PASP, 100, 1373
8. "Superclustering in the Explosion Scenario."  
Weinberg, D. H., Ostriker, J. P., & Dekel, A. 1989, ApJ, 336, 9
- \*9. "The Topology of Large-Scale Structure. III. Analysis of Observations."  
Gott , J. R., Miller, J., Thuan, T. X., Schneider, S. E. , Weinberg, D. H., Gammie, C., Polk, K., Vogeley, M., Jeffrey, S., Bhavsar, S. P., Melott, A. L., Giovanelli, R., Haynes, M. P., Tully, R. B., & Hamilton, A. J. S. 1989, ApJ, 340, 625
10. "The Area of Isodensity Contours in Cosmological Models and Galaxy Surveys."  
Ryden, B. S., Melott, A. L., Craig, D. A., Gott, J. R., Weinberg, D. H., Scherrer, R. J., Bhavsar, S. P., & Miller, J. M. 1989, ApJ, 340, 647
11. "Superclustering in the Explosion Scenario. II. Prolate Spheroidal Shells from Superconducting Cosmic Strings."  
Borden, D., Ostriker, J. P., & Weinberg, D. H. 1989, ApJ, 345, 607
12. "Topology of Large-Scale Structure. IV. Topology in Two Dimensions."  
Melott, A. L., Cohen, A. P., Hamilton, A. J. S., Gott, J. R., & Weinberg, D. H. 1989, ApJ, 345, 618
13. "Simulations of Deep Redshift Surveys."  
Weinberg , D. H., & Gunn, J. E. 1990, ApJL, 352, L25
14. "Properties of Clusters of Galaxies in the Explosion Scenario."  
West, M. J., Weinberg, D. H., & Dekel, A. 1990, ApJ, 353, 329
15. "Large-Scale Structure and the Adhesion Approximation."  
Weinberg , D. H., & Gunn, J. E. 1990, MNRAS, 247, 260
16. "On the Population of HI Dwarf Galaxies."  
Weinberg, D. H., Szomoru, A., Guhathakurta, P., & van Gorkom, J. H. 1991, ApJL, 372, L13

17. "Primordial Fluctuations and Non-linear Structure."  
Little, B., Weinberg, D. H., & Park, C. 1991, MNRAS, 253, 295
18. "Reconstructing Primordial Density Fluctuations – I. Method."  
Weinberg, D. H. 1992, MNRAS, 254, 315
19. "The Topology of the QDOT IRAS Redshift Survey."  
Moore, B., Frenk, C. S., Weinberg, D. H., Saunders, W., Lawrence, A., Ellis, R. S., Kaiser, N., Efstathiou, G., & Rowan-Robinson, M. 1992, MNRAS, 256, 477
- \*20. "Galaxies and Gas in a Cold Dark Matter Universe."  
Katz, N., Hernquist, L., & Weinberg, D. H. 1992, ApJL, 399, L109
- \*21. "Non-Gaussian Fluctuations and the Statistics of Galaxy Clustering."  
Weinberg, D. H., & Cole, S. 1992, MNRAS, 259, 652
22. "Cosmic Voids and Biased Galaxy Formation."  
Little, B., & Weinberg, D. H. 1994, MNRAS, 267, 605
- \*23. "Fourier Analysis of Redshift-Space Distortions and the Determination of  $\Omega$ ."  
Cole, S., Fisher, K. B., & Weinberg, D. H. 1994, MNRAS, 267, 785
24. "Testing the Gravitational Instability Hypothesis?."  
Babul, A., Weinberg, D. H., Dekel, A., & Ostriker, J. P. 1994, ApJ, 427, 1
25. "A Test of the Adhesion Approximation for Gravitational Clustering."  
Melott, A. L., Shandarin, S. F., & Weinberg, D. H. 1994, ApJ, 428, 28
26. "Properties of an HI-selected Galaxy Sample."  
Szomoru, A., Guhathakurta, P., van Gorkom, J. H., Knapen, J. H., Weinberg, D. H., & Fruchter, A. S. 1994, AJ, 108, 491
27. "Weakly Nonlinear Gaussian Fluctuations and the Edgeworth Expansion."  
Juszkiewicz, R., Weinberg, D. H., Amsterdamski, P., Chodorowski, M., & Bouchet, F. 1995, ApJ, 442, 39
28. "Physically Detached 'Compact Groups'."  
Hernquist, L., Katz, N., & Weinberg, D. H. 1995, ApJ, 442, 57
29. "Hydrodynamic Simulations of Galaxy Formation. I. Dissipation and the Maximum Mass of Galaxies."  
Thoul, A. A., & Weinberg, D. H. 1995, ApJ, 442, 480
30. "Kurtosis of Large-Scale Cosmic Fields."  
Lokas, E. L., Juszkiewicz, R., Weinberg, D. H., & Bouchet, F. R. 1995, MNRAS, 274, 730
31. "Constraints on  $\Omega$  from the IRAS Redshift Surveys."  
Cole, S., Fisher, K. B., & Weinberg, D. H. 1995, MNRAS, 275, 515
- \*32. "The Lyman-Alpha Forest in the Cold Dark Matter Model."  
Hernquist, L., Katz, N., Weinberg, D. H., & Miralda-Escudé, J. 1996, ApJL, 457, L51
- \*33. "Damped Lyman-Alpha and Lyman-Limit Absorbers in the Cold Dark Matter Model."  
Katz, N., Weinberg, D. H., Hernquist, L., & Miralda-Escudé, J. 1996, ApJL, 457, L57
- \*34. "Cosmological Simulations with TreeSPH."  
Katz, N., Weinberg, D. H., & Hernquist, L. 1996, ApJ Supp, 105, 19
- \*35. "Hydrodynamic Simulations of Galaxy Formation. II. Photoionization and the Formation of Low-Mass Galaxies."  
Thoul, A. A., & Weinberg, D. H. 1996, ApJ, 465, 608

36. "Imaging the Forest of Lyman Limit Systems."  
     Gould, A., & Weinberg, D. H. 1996, *ApJ*, 468, 462
37. "Photoionization, Numerical Resolution, and Galaxy Formation."  
     Weinberg, D. H., Hernquist, L., & Katz, N. 1997, *ApJ*, 477, 8
38. "Voigt-Profile Analysis of the Ly $\alpha$  Forest in a Cold Dark Matter Universe."  
     Davé, R., Hernquist, L., Weinberg, D. H., & Katz, N. 1997, *ApJ*, 477, 21
39. "The Population of Damped Ly $\alpha$  and Lyman Limit Systems in the Cold Dark Matter Model."  
     Gardner, J. P., Katz, N., Hernquist, L., & Weinberg, D. H. 1997, *ApJ*, 484, 31
40. "Cosmological Constraints from High-Redshift Damped Ly $\alpha$  Systems."  
     Ma, C.-P., Bertschinger, E., Hernquist, L., Weinberg, D. H., & Katz, N. 1997, *ApJL*, 484, L1
41. "A Study of Quasar Clustering at  $z > 2.7$  from the Palomar Transit Grism Survey."  
     Stephens, A. W., Schneider, D. P., Schmidt, M., Gunn, J. E., & Weinberg, D. H. 1997, *AJ*, 114, 41
42. "Large-scale structure in COBE-normalized cold dark matter cosmogonies."  
     Cole, S., Weinberg, D. H., Frenk, C. S., & Ratra, B. 1997, *MNRAS*, 289, 37
43. "Testing Cosmological Models Against the Abundance of Damped Lyman-Alpha Absorbers."  
     Gardner, J. P., Katz, N., Weinberg, D. H., & Hernquist, L. 1997, *ApJ*, 486, 42
44. "Metal Lines Associated with Ly $\alpha$  Absorbers: A Comparison of Theory and Observations."  
     Hellsten, U., Davé, R., Hernquist, L., Weinberg, D. H., & Katz, N. 1997, *ApJ*, 487, 482
45. "Intergalactic Helium Absorption in Cold Dark Matter Models."  
     Croft, R. A. C., Weinberg, D. H., Katz, N., & Hernquist, L. 1997, *ApJ*, 488, 532
- \*46. "The Opacity of the Ly $\alpha$  Forest and Implications for  $\Omega_b$  and the Ionizing Background."  
     Rauch, M., Miralda-Escudé, J., Sargent, W. L. W., Barlow, T. A., Weinberg, D. H., Hernquist, L., Katz, N., Cen, R., & Ostriker, J. P. 1997, *ApJ*, 489, 7
47. "The Topology of Large-Scale Structure in the 1.2 Jy IRAS Redshift Survey."  
     Protogeros, Z. A. M., & Weinberg, D. H. 1997, *ApJ*, 489, 457
- \*48. "A Lower Bound on the Cosmic Baryon Density."  
     Weinberg, D. H., Miralda-Escudé, J., Hernquist, L., & Katz, N. 1997, *ApJ*, 490, 564
- \*49. "Recovery of the Power Spectrum of Mass Fluctuations from Observations of the Ly $\alpha$  Forest."  
     Croft, R. A. C., Weinberg, D. H., Katz, N., & Hernquist, L. 1998, *ApJ*, 495, 44
50. "Quasar Clustering and Spacetime Geometry."  
     Popowski, P. A., Weinberg, D. H., Ryden, B. S., & Osmer, P. S. 1998, *ApJ*, 498, 11
51. "The Observability of Metal Lines Associated with the Ly $\alpha$  Forest."  
     Hellsten, U., Hernquist, L., Katz, N., & Weinberg, D. H. 1998, *ApJ*, 499, 172
52. "Cosmological Simulations with Scale-Free Initial Conditions. I. Adiabatic Hydrodynamics."  
     Owen, J. M., Weinberg, D. H., Evrard, A. E., Hernquist, L., & Katz, N. 1998, *ApJ*, 503, 16
53. "Constraints on the Effects of Locally Biased Galaxy Formation."  
     Scherrer, R. J., & Weinberg, D. H. 1998, *ApJ*, 504, 607
- \*54. "Mock 2dF and SDSS Galaxy Redshift Surveys."  
     Cole, S., Hatton, S., Weinberg, D. H., & Frenk, C. S. 1998, *MNRAS*, 300, 945
55. "Reconstruction Analysis of Galaxy Redshift Surveys: A Hybrid Reconstruction Method."  
     Narayanan, V. K., & Weinberg, D. H. 1998, *ApJ*, 508, 440

56. "Constraining the Metallicity of the Low-Density Ly $\alpha$  Forest Using OVI Absorption." Davé, R., Hellsten, U., Hernquist, L., Katz, N., & Weinberg, D. H. 1998, ApJ, 509, 661
- \*57. "Retrieving Bulge and Disk Parameters and Asymptotic Magnitudes from the Growth Curve of Galaxies." Okamura, S., Yasuda, N., Shimasaku, K., Yagi, M., & Weinberg, D. H. 1999, PASP, 111, 31
- \*58. "The Low-Redshift Ly $\alpha$  Forest in Cold Dark Matter Cosmologies." Davé, R., Hernquist, L., Katz, N., & Weinberg, D. H. 1999, ApJ, 511, 521
59. "High-Redshift Quasars Found in Sloan Digital Sky Survey Commissioning Data." Fan, X., Strauss, M. A., Schneider, D. P., Gunn, J. E., Lupton, R. H., Yanny, B., Anderson, S. F., Anderson, J. E., et al. (89 authors, including DHW), 1999, AJ, 118, 1
- \*60. "The Power Spectrum of Mass Fluctuations Measured from the Ly $\alpha$  Forest at Redshift  $z = 2.5$ ." Croft, R. A. C., Weinberg, D. H., Pettini, M., Hernquist, L., & Katz, N. 1999, ApJ, 520, 1
61. "Closing in on  $\Omega_M$ : The Amplitude of Mass Fluctuations from Galaxy Clusters and the Ly $\alpha$  Forest." Weinberg, D. H., Croft, R. A. C., Hernquist, L., Katz, N., & Pettini, M. 1999, ApJ, 522, 563
62. "The Clustering of High-Redshift Galaxies in the Cold Dark Matter Scenario." Katz, N., Hernquist, L., & Weinberg, D. H. 1999, ApJ, 523, 463
63. "Locally Biased Galaxy Formation and Large-Scale Structure." Narayanan, V. K., Berlind, A. A., & Weinberg, D. H. 2000, ApJ, 528, 1
64. "Topology from the Simulated Sloan Digital Sky Survey." Colley, W. N., Gott, J. R., Weinberg, D. H., Park, C., & Berlind, A. A. 2000, ApJ, 529, 795
65. "The Effects of Gasdynamics, Cooling, Star Formation, and Numerical Resolution in Simulations of Cluster Formation." Lewis, G. F., Babul, A., Katz, N., Quinn, T., Hernquist, L., & Weinberg, D. H. 2000, ApJ, 536, 623
66. "Weak Lensing with Sloan Digital Sky Survey Commissioning Data: The Galaxy-Mass Correlation Function to  $1 h^{-1}$  Mpc." Fischer, P., McKay, T. A., Sheldon, E., Connolly, A., Stebbins, A., Frieman, J. A., Jain, B., Joffre, M., et al., (39 authors, including DHW) 2000, AJ, 120, 1198
67. "Biased Estimates of  $\Omega_m$  from Comparing Smoothed Predicted Velocity Fields to Unsmoothed Peculiar-Velocity Measurements." Berlind, A. A., Narayanan, V. K., & Weinberg, D. H. 2000, ApJ, 537, 537
- \*68. "Reionization and the Abundance of Galactic Satellites." Bullock, J. S., Kravtsov, A. V., & Weinberg, D. H. 2000, ApJ, 539, 517
69. "The Sloan Digital Sky Survey: Technical Summary." York, D. G., Adelman, J., Anderson, J. E., Anderson, S. F., Annis, J., Bahcall, N. A., (144 authors, including DHW), 2000, AJ, 120, 1579
- \*70. "Quasar Clustering and the Lifetime of Quasars." Martini, P., & Weinberg, D. H. 2001, ApJ, 547, 12
- \*71. "Hierarchical galaxy formation and substructure in the Galaxy's stellar halo." Bullock, J. S., Kravtsov, A. V., & Weinberg, D. H. 2001, ApJ, 548, 33

72. "Biased Galaxy Formation and Measurements of  $\beta$ ."  
 Berlind, A. A., Narayanan, V. K., & Weinberg, D. H. 2001, ApJ, 549, 688
73. "The Luminosity Function of Galaxies in SDSS Commissioning Data."  
 Blanton, M. R., Dalcanton, J., Eisenstein, D., Loveday, J., Strauss, M. A., SubbaRao, M., Weinberg, D. H., Anderson, J. E., Annis, J., et al., (69 authors) 2001, AJ, 121, 2358
- \*74. "Baryons in the Warm-Hot Intergalactic Medium."  
 Davé, R., Cen, R., Ostriker, J. P., Bryan, G. L., Hernquist, L., Katz, N., Weinberg, D. H., Norman, M. L., & O'Shea, B. 2001, ApJ, 552, 473
75. "Enrichment of the Intergalactic Medium by Radiation Pressure-Driven Dust Efflux."  
 Aguirre, A., Hernquist, L., Katz, N., Gardner, J., & Weinberg, D. 2001, ApJL, 556, L11
76. "Hydrodynamic Simulation of the Cosmological X-ray Background."  
 Croft, R. A. C., Di Matteo, T., Davé, R., Hernquist, L., Katz, N., Fardal, M., & Weinberg, D. H. 2001, ApJ, 557, 67
77. "Galaxy Number Counts from the Sloan Digital Sky Survey Commissioning Data."  
 Yasuda, N., Fukugita, M., Narayanan, V. K., Lupton, R. H., Strateva, I., Strauss, M. A., Ivezić, Z., et al., (36 authors, including DHW) 2001, AJ, 122, 1104
78. "Simulations of Damped Ly $\alpha$  and Lyman Limit Absorbers in Different Cosmologies: Implications for Structure Formation at High Redshift."  
 Gardner, J. P., Katz, N., Weinberg, D. H., & Hernquist, L. 2001, ApJ, 559, 131
79. "Reconstruction Analysis of the IRAS Point Source Catalog Redshift Survey."  
 Narayanan, V. K., Weinberg, D. H., Branchini, E., Frenk, C. S., Maddox, S., Oliver, S., Rowan-Robinson, M., & Saunders, W. 2001, ApJ Supp, 136, 1
80. "Constraints on Cosmological Parameters from the Ly $\alpha$  Forest Power Spectrum and COBE-DMR."  
 Phillips, J., Weinberg, D. H., Croft, R. A. C., Hernquist, L., Katz, N., & Pettini, M. 2001, ApJ, 560, 15
- \*81. "Metal Enrichment of the Intergalactic Medium at z=3 by Galactic Winds."  
 Aguirre, A., Hernquist, L., Weinberg, D. H., Katz, N., & Gardner, J. 2001, ApJL, 560, 599
82. "Spectroscopic Target Selection for the Sloan Digital Sky Survey: The Luminous Red Galaxy Sample."  
 Eisenstein, D. J., Annis, J., Gunn, J. E., Szalay, A. S., Connolly, A. J., Nichol, R. C., et al., (28 authors, including DHW) 2001, AJ, 122, 2267
83. "Metal Enrichment of the Intergalactic Medium in Cosmological Simulations."  
 Aguirre, A., Hernquist, L., Schaye, J., Katz, N., Weinberg, D. H., & Gardner, J. 2001, ApJ, 561, 521
- \*84. "Cooling Radiation and the Lyman-alpha Luminosity of Forming Galaxies."  
 Fardal, M. A., Katz, N., Gardner, J. P., Hernquist, L., Weinberg, D. H., & Davé, R. 2001, ApJ, 562, 605
85. "Sloan Digital Sky Survey: Early Data Release."  
 Stoughton, C., Lupton, R. H., Bernardi, M., Blanton, M. R., Burles, S., Castander, F. J., et al., (192 authors, including DHW) 2002, AJ, 123, 485
86. "Comparing Simulations and Observations of the Lyman-Alpha Forest I. Methodology."  
 Petry, C. E., Impey, C. D., Katz, N., Weinberg, D. H., & Hernquist, L. E. 2002, ApJ, 566, 30

87. "High-Redshift Galaxies in Cold Dark Matter Models." Weinberg, D. H., Hernquist, L., & Katz, N. 2002, ApJ, 571, 15
88. "The growth of galaxies in cosmological simulations of structure formation." Murali, C., Katz, N., Hernquist, L., Weinberg, D. H., & Dave, R. 2002, ApJ, 571 , 1
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Wu, H.-Y., Weinberg, D. H., Salcedo, A. N., Wibking, B. D. 2021, ApJ, 910, 28
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Eifler, T., Simet, M., Krause, E., Hirata, C., Huang, H.-J., Fang, X., et al. 2021, MNRAS, 507, 1514
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Eifler, T., Miyatake, H., Krause, E., Heinrich, C., Miranda, V., Hirata, C., et al. 2021, MNRAS, 507, 1746
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Vincenzo, F., Weinberg, D. H., Miglio, A., Lane, R. R., Roman-Lopez, A., 2021, MNRAS, 508, 5903
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Huang, S., Katz, N., Cottle, J., Scannapieco, E., Davé, R., & Weinberg, D. H., 2022, MNRAS, 509, 609
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- “Buzzard to Cardinal: Improved Mock Catalogs for Large Galaxy Surveys.”  
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#### SELECTED CONFERENCE PROCEEDINGS

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2. “Studying Structure Formation with Large Galaxy Redshift Surveys.”  
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4. “Small Scale Structure and High Redshift HI.”  
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5. "Galaxy Structure, Dark Matter, and Galaxy Formation." Weinberg, D. H. 1996, in Dark and Visible Matter in Galaxies, ed. M. Persic & P. Salucci , A.S.P. Conference Series 117, San Francisco, 578, astro-ph/9610003
6. "Hubble Flow Broadening of the Lyman-alpha Forest and its Implications." Weinberg, D. H., Hernquist, L., Katz, N., Croft, R. A. C., Miralda-Escudé, J. 1997, in Proceedings of the 13th IAP Colloquium, Structure and Evolution of the Intergalactic Medium from QSO Absorption Line Systems, ed. P. Petitjean & S. Charlot, Nouvelles Frontières, Paris, 133, astro-ph/9709303
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8. "Theoretical Modeling of the High Redshift Galaxy Population." Weinberg, D. H., Davé, R., Gardner, J. P., Hernquist, L., Katz, N. 1999, in Photometric Redshifts and High Redshift Galaxies, ed. R. Weymann, L. Storrie-Lombardi, M. Sawicki, & R. Brunner, ASP Conference Series 191, San Francisco, 341, astro-ph/9908133
9. "Cosmology with the Lyman-alpha Forest." Weinberg, D. H., Burles, S., Croft, R. A. C., Davé, R., Gomez, G., Hernquist, L., Katz, N., Kirkman, D., Liu, S., Miralda-Escudé, J., Pettini, M., Phillips, J., Tytler, D., Wright, J. 1999, in Evolution of Large Scale Structure: From Recombination to Garching, ed. A.J. Banday, R. K. Sheth, & L. N. Da Costa, PrintPartners Ipskamp, Enschede, Netherlands, 346, astro-ph/9810142
10. "Studying Structure Formation with the Sloan Digital Sky Survey." Weinberg, D. H. 2002, in A New Era In Cosmology, ed. N. Metcalfe & T. Shanks, ASP Conference Series , San Francisco, 3, astro-ph/0202184
11. "The Lyman-alpha Forest As A Cosmological Tool." Weinberg, D. H., Davé, R., Katz, N., & Kollmeier, J. A. 2003, in The Emergence of Cosmic Structure, ed. S. Holt & C. Reynolds, AIP Press, 157, astro-ph/0301186
12. "Dark Energy: The Observational Challenge." Weinberg, D. H. 2005, in Wide Field Imaging From Space, ed. T. McKay, A. Fruchter, & E. Linder,, New Astronomy Reviews, Vol. 49,, 337-345, astro-ph/0510196

## OTHER ARTICLES AND REPORTS

"A Space-to-Time Translation."

D. H. Weinberg, in *Notes for a Sculpture and a Film*, ed. J. McElheny, published by Wexner Center for the Arts/The Ohio State University, 2006.

"Perspectives: A Glass Universe."

D. H. Weinberg, *NewScientist Magazine*, December 6, 2008, pp. 46-47.

"Origins and Development of Island Universe."

D. H. Weinberg & J. McElheny, in *Island Universe*, ed. J. McElheny, published by Jay Jopling/White Cube (London), 2008.

“From the Big Bang to the Multiverse: Translations in Space and Time.”

D. H. Weinberg, in *Josiah McElheny: A Prism*, eds. L. Neri & J. McElheny, Skira/Rizzoli Books (New York), 2010. Available as arXiv:1006.1012.

“From the Big Bang to *Island Universe*: Anatomy of a Collaboration.”

D. H. Weinberg, *Narrative*, 19, 258, May 2011. Available as arXiv:1006.1013.

“The Center is Everywhere.”

Weinberg, D. H. 2012, arXiv:1209.5113

“Wide-Field InfraRed Survey Telescope (WFIRST) Final Report.”

Green, J., Schechter, P., Baltay, C., Bean, R., Bennett, D., Brown, R. et al. (54 authors) 2012, NASA technical report, arXiv:1208.4012

“Exploring the NRO Opportunity for a Hubble-sized Wide-field Near-IR Space Telescope – NEW WFIRST.”

Dressler, A., Spergel, D., Mountain, M., Postman, M., Elliott, E., Bendek, E. et al. (27 authors) 2012, White Paper, arXiv:1210.7809

“Wide-Field InfraRed Survey Telescope-Astrophysics Focused Telescope Assets WFIRST-AFTA Final Report.”

Spergel, D., Gehrels, N., Breckinridge, J., Donahue, M., Dressler, A., Gaudi, B. S. et al. (40 authors), NASA Technical Report, arXiv:1305.5422

“WFIRST-2.4: What Every Astronomer Should Know.”

Spergel, D., Gehrels, N., Breckinridge, J., Donahue, M., Dressler, A., Gaudi, B. S. et al. (40 authors), arXiv:1305.5425

“Facilities for Dark Energy Investigations.”

Weinberg, D., Bard, D., Dawson, K., Doré, O., Frieman, J., Gebhardt, K., Levi, M., Rhodes, J., Report from “Dark Energy and CMB” working group for the APS Division of Particle and Fields long-term planning exercise (Snowmass 2013), arXiv:1309.5380

“Dark Energy and CMB.”

Dodelson, S., Honscheid, K., Abazajian, K., Carlstrom, J., Huterer, D., Jain, B., Kim, A., Kirkby, D., Lee, A., Padmanabhan, N., Rhodes, J., Weinberg, D., Report from “Dark Energy and CMB” working group for the APS Division of Particle and Fields long-term planning exercise (Snowmass 2013), arXiv:1309.5386

“Exploiting Cross Correlations and Joint Analyses.”

Rhodes, J., Allen, S., Benson, B. A., Chang, T., de Putter, R., Dodelson, S. et al. (9 authors), Report from “Dark Energy and CMB” working group for the APS Division of Particle and Fields long-term planning exercise (Snowmass 2013), arXiv:1309.5388

“Enduring Quests, Daring Visions: NASA Astrophysics in the Next Three Decades.”

Kouveliotou, C., Agol, E., Batalha, N., Bean, J., Bentz, M., Cornish, N., Dressler, A. et al. (12 authors), Report of NASA Astrophysics Roadmap Team, arXiv:1401.3741

“Wide-Field InfraRed Survey Telescope-Astrophysics Focused Telescope Assets WFIRST-AFTA 2015 Report.”

Spergel, D., Gehrels, N., Baltay, C., Bennett, D., Breckinridge, J., Donahue, M. et al. (54 authors), NASA Technical Report, arXiv:1503.03757

“The DESI Experiment Part I: Science, Targeting, and Survey Design.”

Aghamousa, A., Aguilar, J., Ahlen, S., Alam, S., Allen, L. E., Allende Prieto, C., et al. (293 authors), arXiv:1611.00036

“SDSS-V: Pioneering Panoptic Spectroscopy.”

Kollmeier, J. A., Zasowski, G., Rix, H.-W., Johns, M., Anderson, S. F., Drory, N., et al. (59 authors), arXiv:1711.03234

“Fundamental Physics with the Hubble Space Telescope.”

Dalal, N., Dvorkin, C., Heyl, J., Jain, B., Kamionkowski, M., Marshall, P., & Weinberg, D. 2017, Report for STScI Director, arXiv:1712.04928

“WFIRST Science Investigation Team ‘Cosmology with the High Latitude Survey’ Annual Report 2017.”

Doré, O., Hirata, C., Wang, Y., Weinberg, D., Baronchelli, I., Benson, A., et al. (49 authors), 2018, arXiv:1804.03628

“The Wide Field Infrared Survey Telescope: 100 Hubbles for the 2020s.”

Akeson, R., Armus, L., Bachelet, E., Bailey, V., Bartusek, L., Bellini, A. et al. (106 authors; coordinating author DHW) 2019, arXiv:1902.05569

“WFIRST: The Essential Cosmology Space Observatory for the Coming Decade.” Doré, O., Hirata, C., Wang, Y., Weinberg, D., Eifler, T., Foley, R. J., et al. (49 authors) 2019, arXiv:1904.01174

“Exploring Connections Between Cosmos & Mind Through Six Interactive Art Installations in *As Above As Below*.”

Neyrinck, M., Elul, T., Silver, M., Mallouh, E., Aragón-Calvo, M., Banducci, S., et al. (24 authors, including DHW), arXiv:2008.05942, published in SciArt Magazine

## MISCELLANEOUS

“The Dark Matter Flowchart.”

T. Lauer, T. Statler, B. Ryden, D. Weinberg. 1986.

“Galaxy Formation!”

A board game. 1987.

“The Dark Matter Rap: A Cosmological History for the MTV Generation.”

Live performance and cassette recording. 1992.

See <http://www.astronomy.ohio-state.edu/~dhw/Amusements>

Scientific and design consultant for “An End to Modernity,” a sculpture by Josiah McElheny, exhibited at the Wexner Center for the Arts (Columbus, OH, 10/2005-2/2006), the Andrea Rosen Gallery (New York, NY, 5/2006), and the Los Angeles Museum of Contemporary Art (10/2018-3/2019). Now in the collection of the Tate Modern Gallery, London.

Scientific and design consultant for “The Last Scattering Surface,” a sculpture by Josiah McElheny, exhibited at the Donald Young Gallery (Chicago, 10/06-11/06), the Rochester Art Center (Rochester, 5/07-8/07), the Henry Art Gallery (Seattle, 4/08 - 8/08). Now in the collection of the Phoenix Art Museum.

Scientific and design consultant for “The End of the Dark Ages,” a sculpture by Josiah McElheny, exhibited at the Andrea Rosen Gallery (New York, 10/08-12/08). Now in a private collection.

Scientific and design consultant for “Island Universe,” a sculpture by Josiah McElheny, exhibited at the White Cube Gallery (London, 10/2008-11/2008 and 3/2017-4/2017), the Reina Sophia Museum (Madrid, 1/2009 - 3/2009), the Institute of Contemporary Art (Boston, 6/2012-10/2012), the Moody Center for the Arts (Rice University, 2/2018-6/2018), and the Cantor Center for the

Arts (Stanford University, 3/2019 - 8/2019). Now in the collection of the Los Angeles County Museum of Art.

Scientific and design consultant for "A Study for The Center is Everyhwere," a sculpture by Josiah McElheny, exhibited at the Institute of Contemporary Art (Boston, 6/2012 - 10/2012). Now in a private collection.

Script consultant for "Dark Matter," winner of the Alfred P. Sloan as a theme or depicting a scientist or mathematician as a major character." (Film written by Billy Shebar, directed by Chen Shi-Zheng, starring Liu Ye, Aidan Quinn, and Meryl Streep.)

#### INVITED CONFERENCE TALKS AND PUBLIC LECTURES SINCE 2005

"What Can We Learn From Galaxy Clustering?"

205th American Astronomical Society Meeting, Plenary Talk, San Diego, CA, January 2005

"Gas Accretion and Galaxy Formation: The SPH View."

Nearly Normal Galaxies in a Lambda-CDM Universe, Santa Cruz, CA, August 2005

"The Invisible Universe: Dark Matter and Dark Energy." Public Lecture, University of Michigan Einstein Centennial program, September, 2005

"Cosmology and Large Scale Structure."

Making the Most of the Great Observatories, Spitzer Science Center, Pasadena, CA, May 2006

"Redshift-Space Distortions in the Sloan Digital Sky Survey."

Large Scale Structure in the Sloan Digital Sky Survey, special session at the June 2006 AAS meeting, Calgary

"Sculpting the Universe." Public Lecture, Adler Planetarium, Chicago, IL, September 2006

"SDSS-III: Dark Energy and Near-Field Cosmology." Great Lakes Cosmology Workshop IX, Pittsburgh, PA, June 2008

"SDSS-III: Massive Spectroscopic Surveys of the Distant Universe, the Milky Way Galaxy, and Extra-Solar Planetary Systems." The Sloan Digital Sky Survey: Asteroids to Cosmology, Chicago, IL, August 2008

"From the Big Bang to Island Universe." Joint public lectures with Josiah McElheny at the Institute of Contemporary Art (London, 10/08), the annual meeting of the American Society for Aesthetics (Northampton, 11/08), the Phoenix Art Museum (12/08), and the Wexner Center for the Arts (Columbus, 4/09)

"Cosmology from the Sloan Digital Sky Survey." American Physical Society special session on Observational Cosmology (with John Ruhl, Sandra Faber), Pittsburgh, PA, March 2009

"From the Big Bang to Island Universe." Narrative, Science, and Performance, Ohio State University, Columbus, OH, October 2009

"BOSS and BAO as Probes of Cosmic Acceleration." The Observational Pursuit of Dark Energy After Astro2010, Caltech, Pasadena, CA, October 2010

"Connecting Galaxies to Dark Matter Halos: HOD, CLF, SHAM, and all that ..." Galaxy Formation, Durham University, Durham, UK, July 2011

"Sculpting the Universe." Cleveland Science Museum, Cleveland, OH, November 2011

"In, Out, and Around: An Overview from Simulations." Theoretical overview talk, Gas Flows in Galaxies, Space Telescope Science Institute, Baltimore, MD, May 2012

- “Cosmic Acceleration: WFIRST and Beyond.” NASA Physics of the University Program Advisory Group meeting, Washington, D.C., August 2012
- “Studying Cosmic Acceleration with WFIRST-NRO.” New Telescope Meeting, Princeton University, Princeton, NJ, September 2012
- “Cold Dark Matter: Controversies on Small Scales.” Panel organizer and moderator. NAS Sackler Symposium on Dark Matter, Irvine, CA, October 2012
- “Representing Scientific Ideas in Art.” Panel discussion at Boston Institute of Contemporary Art, connected to the exhibition Josiah McElheny: Some Pictures of the Infinite, Boston, MA, October 2012
- “Why is the Universe Accelerating?” Invited talk at Ohio Divisional Meeting of the American Physical Society, Ohio University, Athens, OH, April 2013
- “Galaxies in the Cosmic Web: Opening Questions.” Introductory talk of KICP workshop on Galaxies in the Cosmic Web, Chicago, IL, June 2013
- “The Origin of the Hubble Sequence: Conference Summary.” Summary talk (joint with F. Combes) for IAP Colloquium, Paris, France, June 2013
- “A Half-Career in Cosmology.” Keynote talk at the NSF Astronomy and Astrophysics Postdoctoral Fellows Symposium, Washington, DC, January 2014
- “Sculpting the Universe.” Popular talk for the University of Michigan Saturday Morning Physics series, Ann Arbor, MI, February 2014.
- “BOSS BAO Measurements in Context.” Plenary science talk at SDSS-III Collaboration Meeting, Park City, UT, July 2014
- “Sculpting the Universe.” Invited talk at the High Energy Astrophysics Division meeting of the American Astronomical Society, special session on Science and Art, Chicago, IL, August 2014
- “The Sloan Digital Sky Survey: Past, Present, & Future.” Invited talk at retirement celebration for Jill Knapp, Princeton, NJ, September 2014
- “Cosmology and Fundamental Physics With Chandra.” Invited talk in special session on Astro2010 at 15 Years of Chandra Symposium, Boston, MA, November 2014
- “Cosmic Acceleration: From Today to WFIRST.” Invited talk at Wide Field Infrared Surveys, Pasadena, CA, November 2014
- “BOSS: Our Past Light Cone.” Introductory talk at BOSS Collaboration Meeting, Cloudcroft, NM, December 2014
- “Cosmic Acceleration with WFIRST-AFTA.” Invited talk in WFIRST Special Session at the American Astronomical Society annual meeting, Seattle, WA, January 2015
- “Cosmological Highlights from the Sloan Digital Sky Survey.” Lancelot M. Berkeley Prize lecture at the American Astronomical Society annual meeting, Seattle, WA, January 2015
- “Sculpting the Universe.” Invited talk for Penn State’s “Frontiers of Science” lecture series on “100 Years After Einstein’s Greatest Discovery,” State College, PA, January 2015
- “Precision Cosmology with Large Scale Structure.” Three 90-minute lectures at ICTP Advanced School in Cosmology, Trieste, Italy, May 2015
- “Galaxy and Black Hole Evolution in the 2020s: A High Energy View.” Invited talk for special session on Astro2020 at AAS High Energy Astrophysics Division meeting, Chicago, IL, June 2015

“Large Scale Structure: Past, Present, and Future.” Invited talk for IAP conference in celebration of Francois Bouchet’s 60th birthday, Paris, France, March 2016.

“Learning from Gravity: Planet IX, Gravitational Waves, and the Accelerating Universe.” Inaugural talk of the OSU Astronomy & Astrophysics Public Lecture Series, Columbus, OH, September 2016.

“From Planets to Dark Energy: Forecasting the Astronomical Landscape for WFIRST.” Introductory talk at the STScI WFIRST Symposium, Baltimore, MD, June 2017.

“Cosmology with the Lyman-alpha Forest.” Invited talk at TeV Particle Astrophysics 2017, Columbus, OH, August 2017.

“Massively Parallel Large Area Spectroscopy from Space: Cosmology Theory Review.” Invited review for ATLAS Symposium, Caltech, Pasadena, CA, October 2018.

“From the Big Bang to Island Universe.” Joint talk with Josiah McElheny for the opening of the *Island Universe* exhibition at the Cantor Center for Visual Arts, Stanford University, Stanford, CA, March 2019.

“Cosmology with Clusters: Past and Future.” Invited talk at GusFest, a celebration of Gus Evrard’s 60th birthday, University of Michigan, Ann Arbor, MI, May 2019.

“Decoding the Origin of Elements and the History of the Galaxy.” The John Bahcall Memorial Lecture, Tel Aviv University, Tel Aviv, Israel, June 2019.

“Large Scale Structure and Dark Energy.” Invited review in ICG@25: Multimessenger Universe, Penn State Institute for Gravitation and the Cosmos, June 2019

“Asteroids to Reionization: The Broad Reach of Survey Astronomy.” Heineman Prize lecture (with Robert Lupton) at 241st meeting of the American Astronomical Society, Pasadena, CA, June 2022

“Insights on the Early Galaxy and Its Satellites from Stellar Abundances.” Invited review in IAU Symposium 377, Kuala Lumpur, Malasyia, February 2023