

Andrew H. Jaffe

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Current Position	Professor of Astrophysics and Cosmology	October, 2007–Present
	Reader in Astrophysics	October, 2004–September 2007
	Lecturer	September, 2001–October, 2004
	PPARC Advanced Fellow	September, 2001–August, 2006
	Imperial College London London, England	

Research Interests	Cosmology: The statistics of cosmological datasets; microwave background theory and data analysis; Large-Scale Structure; Gravitational radiation; Initial conditions for structure formation; Large-scale flows
	Particle Astrophysics

Academic Training	University of Chicago, Department of Astronomy & Astrophysics Ph.D., June, 1994; M.S., December, 1990
	Yale University, Departments of Astronomy and Physics B.S. <i>summa cum laude</i> with honors, May, 1988

Research	Assistant Research Physicist	October, 1997–August, 2001
	CfPA Fellow	September, 1996–October, 1997
	Center for Particle Astrophysics & Department of Astronomy University of California, Berkeley	
	Postdoctoral Fellow	October, 1993–September, 1996
	Canadian Institute for Theoretical Astrophysics University of Toronto	
	Doctoral Candidate	October, 1990–September, 1993
	Department of Astronomy & Astrophysics, University of Chicago Faculty Advisors: Dr. Michael S. Turner, Dr. Joshua Frieman. PhD. Thesis: Quasi-linear Evolution of Compensated Cosmological Perturbations: the Non-linear Sigma Model, <i>Phys. Rev. D</i> 49 , 3893, 1994.	
	Research Assistant	Summer, 1986; Sept., 1988–Aug., 1989
	NASA/Goddard Institute for Space Studies, New York City Dr. Michael Prather. Simulations of Antarctic ozone hole and atmospheric chemistry.	
	Undergraduate Research, Yale University	September, 1987–May, 1988
	NASA/Goddard Institute for Space Studies, New York City Supervisor: Prof. David Guenther. Simulations of solar evolution & seismology.	

Committees, Collaborations & Grants	Planck Surveyor Satellite Co-investigator; Leader, London Planck Analysis Center
	AstroGrid Science Advisory Group (UK) Chair, 2003–
	MAXIMA, BOOMERANG CMB Anisotropy Experiments

COMBAT

Cosmic Microwave Background Analysis Tools, NASA

Long-Term Space Astrophysics Grant (UC Berkeley), NASA 1997–2002

Scientific Principal Investigator

Foreground Analysis and Removal for Future CMB Experiments (PI: G. Smoot)

New Computing Challenges in Cosmology (UC Berkeley), NSF 1998–2001

Principal Investigator; Co-PIs: Marc Davis, Joseph Silk, George Smoot, Phillip Stark.

Committee and Panel memberships:

PPARC rolling grant panels; EPSRC Extreme Computing Initiative;

Graduate Students

Imperial College

David I. Dawe, 2002–2007.

Anastasia Niarchou, 2003–2006 (currently PDRA, Imperial College)

Joseph A. Zuntz, 2004–2007 (expected; will take up PDRA at Oxford, Autumn 2007).

Paniez Paykari, 2006–2009 (expected)

Teaching & Administration

Imperial College London, 2001–present.

Lecturer, Mathematics – Fourier Analysis, 2006–07.

Physics Tutorials: 2005–06.

Graduate Astrophysics lectures in Cosmology, 2001–2005;

Demonstrator, Computing, 2001–02, 2002–03, 2004–05;

Personal Tutoring;

Comprehensive Exam Committee, 2001–02, 2002–03.

Astrophysics Group Seminar Organizer, 2002–2004.

Lecturer, NATO Advanced Study Institute, Cargèse, Cosmology 2003, “CMB Fluctuations”

External Ph.D. Examiner:

K. Maisinger, Cambridge, 2002.

R. Bowen, Oxford, June 2003.

T. Poutanen, Helsinki, November 2005.

University of California, Berkeley—Assisted in teaching Physics 24, “The Big Bang,” w/ B. Sadoulet, Spring 1997–2001.

Teaching Assistant, University of Chicago, Dep’t of Astronomy & Astrophysics
Fall, 1989–Fall, 1991.

Citation Statistics

(see <http://www.slac.stanford.edu/spires/>)

Number of citations: 5952

Citations per paper: 121

Max citations of single paper: 1006

h: 26 see <http://physicsweb.org/articles/news/9/8/9/>

Books

1. *The Cosmic Microwave Background: Astrophysics and Cosmology*, Imperial College Press (World Scientific). In preparation (2007).

Refereed Publications & Reviews

1. A.Niarchou & A.Jaffe. "Imprints of spherical non-trivial topologies on the CMB", *Phys. Rev. Lett.*, submitted (astro-ph/0702436).
2. "MAXIPOL: Data Analysis and Results", J.H.P. Wu *et al*, *Ap. J.*, to appear, (astro-ph/0611392).
3. "MAXIPOL: Cosmic Microwave Background Polarimetry Using a Rotating Half-Wave Plate", B.R. Johnson *et al*, *Ap. J.*, to appear, (astro-ph/0611394).
4. "A Measurement of the Angular Power Spectrum of the CMB Temperature Anisotropy from the 2003 Flight of Boomerang," W.C. Jones *et al*. *Ap. J.*, 647:823832, 2006 (astro-ph/0507494).
5. "Cosmological Parameters from the 2003 flight of BOOMERANG," C.J. MacTavish, *et al*. *Ap. J.*, 647:799812, 2006 (astro-ph/0507503).
6. "Instrument, Method, Brightness and Polarization Maps from the 2003 flight of BOOMERANG," S. Masi *et al*. *Astron. & Astrophys.*, 458:687716, 2006 (astro-ph/0507509).
7. "A Measurement of the CMB EE Spectrum from the 2003 Flight of BOOMERANG," T.E. Montroy *et al*. *Ap. J.*, 647:813822, 2006 (astro-ph/0507514).
8. "A measurement of the polarization-temperature angular cross power spectrum of the Cosmic Microwave Background from the 2003 flight of BOOMERANG," F. Piacentini *et al*. *Ap. J.*, 647:833839, 2006 (astro-ph/0507507).
9. "Observing Gravitational Radiation with QSO Proper Motions and the SKA," to appear in "Science with the Square Kilometer Array," eds. C. Carilli and S. Rawlings, *New Astronomy Reviews* (Elsevier: Amsterdam) 2004 (astro-ph/0409637).
10. "A Polemic On Probability," review of E.T. Jaynes, *Probability Theory*, in *Science*, 301, 1329 (2003).
11. "The Cosmic Microwave Background," in: *Astrophysics Update*, ed. J. W. Mason (Heidelberg: Springer-Praxis Books in Astrophysics and Astronomy), 2004.
12. "The MAXIMA Experiment: Latest Results and Consistency Tests," R.Stompor *et al*, *C.R. Physique* (Academie des Sciences) 2003 (astro-ph/0309409).
13. "Correlations Between the WMAP and MAXIMA Cosmic Microwave Background Anisotropy Maps," M.E. Abroe *et al*, *Ap. J.*, 605, 607-613, 2004. (astro-ph/0308355).
14. "Large-scale power in the CMB and new physics: an analysis using Bayesian model comparison," A. Niarchou, A.H. Jaffe & L. Pogosian, *Phys. Rev. D*69, 063515, 2004 (astro-ph/0308461).
15. "Multiple methods for estimating the bispectrum of the cosmic microwave background with application to the MAXIMA data," M. Santos *et al*, *Mon. Not. R. Astr. Soc.*, 341, 623, 2003 (astro-ph/0211123).
16. "An Estimate of Ω_m Without Conventional Priors," H. Feldman *et al*, *Ap. J.*, 596, 1131, 2003. (astro-ph/0305078)
17. "Observations of Galactic and Extra-galactic Sources From the BOOMERANG and SEST Telescopes," K. Coble *et al*, *Ap. J. Supp.*, submitted, 2003. (astro-ph/0301599)
18. "Determining Foreground Contamination in CMB Observations: Diffuse Galactic Emission in the MAXIMA-I Field," A.H. Jaffe *et al.*, *Ap. J.*, 615, 55-62, 2004. (astro-ph/0301077)

19. "Improved Measurement of the Angular Power Spectrum of Temperature Anisotropy in the CMB from Two New Analyses of BOOMERANG Observations," J. Ruhl *et al.*, *Ap. J.*, 599, 786-805, 2003. (astro-ph/0212229)
20. "Gravitational Waves Probe the Coalescence Rate of Massive Black Hole Binaries," A.H. Jaffe & D.C. Backer, *Ap. J.*, 583, 616, 2003. (astro-ph/0210148)
21. "Search for non-gaussian signals in the BOOMERanG maps: pixel-space analysis," G. Polenta *et al.*, *Ap. J. Lett.*, submitted, 2002. (astro-ph/0201133)
22. "Frequentist Estimation of Cosmological Parameters from the MAXIMA-1 Cosmic Microwave Background Anisotropy Data," M.E. Abroe *et al.*, *Mon. Not. R. Astr. Soc.*, 334, 11-19, 2002. (astro-ph/0111010)
23. "An estimate of the Cosmological Bispectrum from the MAXIMA-1 CMB map," M.G. Santos *et al.*, *Phys. Rev. D*88, 241302, 2002. (astro-ph/0107588)
24. "Making Maps Of The Cosmic Microwave Background: The MAXIMA Example," R. Stompor *et al.*, *Phys. Rev. D*65, 22003, 2002. (astro-ph/0106451)
25. "Multiple Peaks in the Angular Power Spectrum of the Cosmic Microwave Background: Significance and Consequences for Cosmology," P. de Bernardis *et al.*, *Ap. J.*, 564, 559-566, 2002. (astro-ph/0105296)
26. "A measurement by BOOMERANG of multiple peaks in the angular power spectrum of the cosmic microwave background," C.B. Netterfield *et al.*, *Ap. J.*, 571, 604-614, 2002. (astro-ph/0104460)
27. "Cosmological implications of the MAXIMA-I high resolution Cosmic Microwave Background anisotropy measurement," R. Stompor *et al.*, *Ap. J.*, 561, L7-10, 2001. (astro-ph/0105062)
28. "A High Spatial Resolution Analysis of the MAXIMA-1 Cosmic Microwave Background Anisotropy Data," A.T. Lee *et al.*, *Ap. J.*, 561, L1-5, 2001. (astro-ph/0104459)
29. "Tests for Gaussianity of the MAXIMA-1 CMB Map," J.H.P. Wu *et al.*, *Phys. Rev. Lett.*, 87, 251303, 2001. (astro-ph/0104248)
30. "Secondary CMB Anisotropies from Cosmological Reionization", N.Y. Gnedin & A.H. Jaffe, *Ap. J.*, 551, 3-14, 2001. (astro-ph/0008469)
31. "Cosmology from MAXIMA-1, BOOMERANG & COBE/DMR CMB Observations", A.H. Jaffe *et al.*, *Phys. Rev. Lett.*, 86, 3475-3479, 2001. (astro-ph/0007333)
32. "Asymmetric Beams in Cosmic Microwave Background Anisotropy Experiments", J.H.P. Wu *et al.*, *Ap. J. Supp.*, 132, 1-17, 2001. (astro-ph/0007212).
33. "Constraints on Cosmological Parameters from MAXIMA-1" A. Balbi *et al.*, *Ap. J.*, L1-4, 2000. (astro-ph/0005124).
34. "MAXIMA-1: A Measurement of the Cosmic Microwave Background Anisotropy on angular scales of 10 arcminutes to 5 degrees" S. Hanany *et al.*, *Ap. J.*, 545, L5-9, 2000. (astro-ph/0005123).
35. "First Estimations of Cosmological Parameters from BOOMERANG," A.E. Lange *et al.*, *Phys. Rev. D*63, 042001, 2001. (astro-ph/0005004)
36. "A Flat Universe from High-Resolution Maps of the Cosmic Microwave Background Radiation," P. de Bernardis *et al.*, *Nature*, 404, 955-959, 2000.
37. "A Measurement of Ω from the North American Test Flight of BOOMERANG," A. Melchiorri *et al.*, *Astrophys. J.*, 536, L63-66, 2000. (astro-ph/9911445)
38. "Measurement of a Peak in the Cosmic Microwave Background Power Spectrum from the North American Test Flight of BOOMERANG," P.D. Mauskopf *et al.*, *Astrophys. J.*, 536, L59-62, 2000. (astro-ph/9911444)

39. “New Evidence for a Low Density Universe,” R. Juszkiewicz, P.G. Ferreira, H.A. Feldman, A.H. Jaffe & M. Davis, *Science*, **7**, 287, 109-112, 2000. (astro-ph/0001041)
40. “A Polarization Pursuers’ Guide,” A.H. Jaffe, M. Kamionkowski & L. Wang, *Phys. Rev. D*, **61**, 083501, 2000. (astro-ph/9909281).
41. “Using the Comoving Maximum of the Galaxy Power Spectrum to Measure Cosmological Curvature,” T. Broadhurst & A.H. Jaffe, *Ap. J. Lett.*, submitted, 1999. (astro-ph/9904348)
42. “The Angular Three-Point Correlation Function in the Quasilinear Regime,” A. Buchalter, M. Kamionkowski & A.H. Jaffe, *Ap. J.*, **530**, 36–52, 1999. (astro-ph/9903486)
43. “Applications of Wavelets to the Analysis of Cosmic Microwave Background Maps,” L. Tenorio, A.H. Jaffe, S. Hanany & C.H. Lineweaver, *Mon. Not. R. Astr. Soc.*, **310**, 3, 823-834, 1999. (astro-ph/9903026)
44. “Simultaneous Estimation of Noise and Signal in CMB Experiments,” P.G. Ferreira & A.H. Jaffe, *Mon. Not. R. Astr. Soc.*, **312**, 1, 89-102, 2000. (astro-ph/9909250)
45. “Computing Challenges for the Cosmic Microwave Background,” J.R. Bond, R. Crittenden, A.H. Jaffe & L.E. Knox, *Computing in Science and Engineering*, invited article, March/April, Vol. 1, No. 2, p. 21, 1999. (astro-ph/9903166)
46. “Observational Constraints on Microwave Anisotropy from Point Sources,” E. Gawiser, A.H. Jaffe & J. Silk, *Astrophys. J.*, submitted, 1998. (astro-ph/9811148)
47. “New Troubles for Inflation,” M. Kamionkowski & A.H. Jaffe, *Nature*, **395**, 639, 1998. (News & Views)
48. “Streaming velocities as a dynamical estimator of Ω ,” P.G. Ferreira, R. Juszkiewicz, H. Feldman, M. Davis, & A. Jaffe, *Astrophys. J. Lett.*, **515**, 1, 1999. (astro-ph/9812456)
49. “Radical Compression of Cosmic Microwave Background Data,” J.R. Bond, A.H. Jaffe & L. Knox, *Astrophys. J.*, **533**, 19-37, 2000. (astro-ph/9808264)
50. “Constraining Large Scale Structure Theories with the Cosmic Background Radiation,” J.R. Bond & A.H. Jaffe, *Phil. Trans. R. Soc. London*, **357**, 57-75, 1999. (astro-ph/9809043)
51. “Comparing Cosmic Microwave Background Datasets,” L. Knox, J.R. Bond, A.H. Jaffe, M. Segal & D. Charbonneau, *Phys. Rev. D*, **58**, 083004, 1998. (astro-ph/9803272)
52. “The Effect of The Detector Time Constant on Bolometric CMB Experiments,” S. Hanany, A.H. Jaffe & E. Scannapieco, *Mon. Not. R. Astr. Soc.*, **299**, 3, 653-660, 1998. (astro-ph/9801291)
53. “Calculation of the Ostriker-Vishniac Effect in CDM Models,” A.H. Jaffe & M. Kamionkowski, *Phys. Rev. D* **58**, 043001, 1998. (astro-ph/9801022)
54. “Likelihood Analysis of Galaxy Surveys,” S. Dodelson, L. Hui & A.H. Jaffe, *Ap. J.*, submitted, 1997. (astro-ph/9712074)
55. “Estimating the Power Spectrum of the Cosmic Microwave Background,” J.R. Bond, A.H. Jaffe & L. Knox, *Phys. Rev. D* **57**, 2117, 1998. (astro-ph/9708203)
56. “Bending of Light by Gravity Waves”, N. Kaiser & A.H. Jaffe, *Astrophys. J.*, **484**, 545, 1997. (astro-ph/9609043)
57. “Limits to Radiative Neutrino Decay from SN1987A”, A.H. Jaffe & M.S. Turner, *Phys. Rev. D* **55**, 7951, 1997, CITA-95-26.
58. “ H_0 and Odds on Cosmology”, A.H. Jaffe, *Astrophys. J.* **471**, 24, 1996. CITA-95-1.
59. “Likelihood Analysis of Large-Scale Flows”, A.H. Jaffe & N. Kaiser, *Astrophys. J.* **455**, 26, 1995.

60. "Quasi-linear Evolution of Compensated Cosmological Perturbations: the Nonlinear Sigma Model", *Phys. Rev.* **D49**, 3893, 1994. [PhD. Thesis]
61. "Minimal Microwave Anisotropies from Perturbations Induced at Late Times," A.H. Jaffe, A. Stebbins & J. Frieman, *Astrophys. J.*, **420**, 9, 1994.
62. "Cosmological Constraints on Pseudo-Nambu-Goldstone Bosons", J. Frieman & A.H. Jaffe, *Phys. Rev. D* **45**, 2674, 1992.
63. "Global Impact of the Antarctic Ozone Hole: Chemical Propagation", M. Prather & A.H. Jaffe, *J. Geophys. Res.*, **95**, 3473, 1990.
64. "The Standard Solar Model: Composition, Opacities, and Seismology", D.B. Guenther, A.H. Jaffe, & P. DeMarque, *Astrophys. J.*, **345**, 1022, 1989.

Selected Conference Proceedings

1. A.Niarchou & A.H. Jaffe. "Predicting and analyzing topological correlations in the CMB", in N.Solomos, ed., *AIP Conf. Proc. 848: Recent Advances in Astronomy and Astrophysics*, pp. 774778, 2006.
2. W.C. Jones et al, "Observations of the temperature and polarization anisotropies with BOOMERANG 2003", *New Astronomy Review*, 50:945950, 2006.
3. "MAXIPOL: A Balloon-borne Experiment for Measuring the Polarization Anisotropy of the Cosmic Microwave Background Radiation," B. Johnson *et al*, *New Astronomy Reviews*, 47, 1067-1075, 2003 ([astro-ph/0308259](#)).
4. "Predicting the Polarization of The Microwave Background from the WMAP Temperature Maps," A.H. Jaffe, *New Astronomy Reviews*, 47, 1001-1007, 2003 ([astro-ph/0307118](#)).
5. "Recent Results from the MAXIMA Experiment," A.H. Jaffe *et al*, *New Astronomy Reviews*, Proceedings of the CMBNET Meeting, 47, 727-732, 2003. ([astro-ph/0306504](#)).
6. "Modern Measurements of the Cosmic Microwave Background," The Observatory, 2002.
7. "A new era in the Cosmic Microwave Background: the CMB in 2002," A New Era In Cosmology, ed. T. Shanks, ASP Conference Series, 2002.
8. "Statistics and the CMB," A.H. Jaffe, Proc. of Statistical Challenges in Modern Astronomy, eds. Feigelson & Babu, 2001.
9. "The Cosmic Background Radiation circa ν 2K," J.R. Bond et al, Proc. Neutrino 2000 (Elsevier). ([astro-ph/0011381](#))
10. "The Quintessential CMB, Past & Future," J.R. Bond et al, Proc. of the CAPP 2000 conference, (AIP). ([astro-ph/0011379](#))
11. "Detection of Gravitational Waves from Inflation," M. Kamionkowski & A.H. Jaffe, Proc. DPF2000; Proc. Gravitational Waves: A Challenge to Theoretical Astrophysics 2000. ([astro-ph/0011329](#))
12. "CMB Likelihood Functions for Beginners and Experts," A.H. Jaffe, J.R. Bond, P.G. Ferreira & L. Knox, Proc. '3K Cosmology', ed. F Melchiorri, 1999. ([astro-ph/0306504](#)).
13. "MAXIMA: an experiment to measure temperature anisotropy in the cosmic microwave background," A.T. Lee *et al.*, '3K Cosmology', ed. F Melchiorri, 1999. ([astro-ph/9903249](#))
14. "WOMBAT & FORECAST: Making Realistic Maps of the Microwave Sky," A.H. Jaffe *et al.*, Proc. 1998 Sloan Summit on Microwave Foregrounds, eds., A. de Oliveira-Costa & M. Tegmark, 1999.

15. "Cosmic Parameter Estimation Combining Sub-Degree CMB Experiments With COBE", A.H. Jaffe & J.R. Bond, in *Proceedings of the XVIth Moriond meeting, "Microwave Background Anisotropies,"* ed. F.R. Bouchet *et al.*, Editions Frontieres, 1997.
16. "Limits on Neutrino Radiative Decay from SN1987A" in C.H. Albright *et al.*, *The Fermilab Meeting: DPF '92*, World Scientific, 1993.

Selected Meetings & Workshops

International Organizing Committee and invited Review, COSPA 2006, Taiwan, November, 2006.

Inaugural meeting of the IOP Astroparticle-physics group, invited review on The Cosmic Microwave Background, May 2006.

New Views on the Cosmos, Chicago, organized session on CMB Physics (December 2005).

PhyStat 2005, Oxford, invited Summary.

Japanese General Relativity and Gravitation Meeting, Tokyo; invited review (November 2005).

Garching, Cosmology Spring 2005, invited review.

Physics 2005, A century after Einstein, University of Warwick, UK; invited talk on Gravitational Radiation (April 2005).

XX IAP Meeting on CMB Physics; invited review of CMB Power Spectrum Estimation (June-July 2004).

UK National Astronomy Meeting, April 2005; invited plenary talk "CMB – Current Challenges".

Lecturer, NATO Advanced Study Institute, Cargèse, Cosmology 2003, "CMB Fluctuations"

American Physical Society, Philadelphia, April, 2003. Invited review.

"COSPA 2002," Taipei, Taiwan, June, 2002. Scientific Organizing Committee; Invited review.

"A New Era in Cosmology," Durham, September, 2001. Invited review talk.

Statistical Challenges in Modern Astronomy, 2001. Invited review.

Snowmass 2001. Organized session P4.3, "CMB and Inflation".

20th Texas Symposium of Relativistic Astrophysics, Austin, TX, Dec. 2000. Organized CMB Parallel Session.

International Conference on High-Energy Physics, Osaka, Japan, July-August 2000. Invited review.

Public Lectures and Outreach

The Open Museum (National Maritime & Royal Observatory, Greenwich, UK), one-day course in Cosmology, 13 March 2005.

Edinburgh International Science Festival, 12 April 2005.

References

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Dr. Julian Borrill, Computational Research Division, Mailstop 50F, Lawrence Berkeley National Laboratory, CA 94720, USA. Tel: 510-486-7308. jdborrill@lbl.gov

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