

Curriculum Vitae—Adam Guy Riess

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Education

Harvard University, Ph.D., Astrophysics, 1996
Harvard University, A.M., Astrophysics, 1994
Massachusetts Institute of Technology, B.S, Physics, Minor in History 1992

Positions Held

Johns Hopkins University, Professor of Physics and Astronomy, 2006-present
Space Telescope Science Institute, Senior Science Staff, 1999-2005
U.C. Berkeley, Miller Fellow, 1996-1999
Harvard University, Doctoral Student, 1992-1996
Lawrence Livermore National Laboratory, Research Associate, Summer 1992
Massachusetts Institute of Technology, Undergraduate Research Assistant, 1990-1992

Honors and Awards— Recognition by Peers

Fellow of the American Academy of Arts and Sciences, 2008
Kavli Frontier of Science Fellow, 2007
Gruber Prize in Cosmology, 2007
Shaw Prize, Hong Kong, 2006
Townes Prize in Cosmology, UC Berkeley, 2005
Raymond and Beverly Sackler Prize, Tel-Aviv University, 2004
International Academy of Astronautics, Laurels for Achievement Award, 2004
Helen B. Warner Prize, American Astronomical Society, 2003
Bok Prize, Harvard University, 2001
AURA Science Award, 2000
STScI Science Merit Award, 2000, 2001
Trumpler Award, Astronomical Society of the Pacific, 1999
Harvard GSAS Merit Fellow, 1995
Harvard Distinction in Teaching Award, 1994
Margaret Weyerhaeuser Jewett Memorial Fellowship, 1993
Phi Beta Kappa at MIT, GPA: 4.94/5.00

Honors and Awards— Public Recognition

Esquire Magazine “Best and Brightest” Award, 2003

Discover Magazine Innovator Award, Finalist, 2003

Time Magazine Innovator Award, 2000

Science Magazine’s Research “Breakthrough of the Year”, 1998

Science Initiatives

Principal Investigator of the Higher-z SN Team which has found and measured the 20 most distant type Ia supernovae known through the competitive awarding of more than 800 orbits of Hubble Space Telescope Time in 5 cycles and \$2M in grants since 2002.

Joint Dark Energy Mission Science Definition Team, 2004-present

Founding member of science team for four active dark energy programs: ESSENCE, ADEPT, SDSS SN Survey, and Pan-STARRS.

Supervised Students and Postdocs

Mr. Dan Scolnic, Graduate Student, JHU, 2007-present

Dr. Mark Huber, Postdoctoral Fellow, JHU, 2007-present

Dr. Andre Martel, Postdoctoral Fellow, JHU, 2006-present

Miss. Bridget Faulk, Graduate Student, JHU, 2006-present

Dr. Joao Souza, Postdoctoral Fellow, STScI, 2005-present

Dr. Hubert Lampeitl, Postdoctoral Fellow, STScI, 2005-present

Dr. Louis Strolger, Postdoctoral Fellow, STScI, 2002-2005

Mr. Josh Younger, Undergraduate Research Assistant, STScI, 2005

Mr. Chris Carpenter, Undergraduate Research Assistant, Harvard, 1996

Teaching and Public Communication

Johns Hopkins University, taught Physics 171.118, Spring 2008

Johns Hopkins University, taught Physics 171.112, Spring 2007

Scientific American Magazine, “From Slowdown to Speedup”, by A. G. Riess and M. S. Turner, February 2004

Johns Hopkins University, Physics and Astronomy Department, co-taught, “Hot Topics in Astrophysics”, Spring 2003

Harvard University, Teaching Fellow (TF): Astronomy 14, Spring 1993

Harvard University, TF: Astronomy 35, Fall 1993, Fall 1994

Massachusetts Institute of Technology, Physics Department, TF, “The Physics of Sports”, Fall 1992

“Scientific American Frontiers”, Guest, PBS, 2004

“60 Minutes”, Guest, CBS, 2003

“Science Friday”, Guest, NPR, 2001

“NOVA”, Guest, PBS, 2000

“Sound Prints”, Guest, NPR, 2000

“Jim Lehrer News Hour”, Guest, PBS, 1998

“Headline News”, Guest, CNN, 1998

“Science Friday”, Guest, NPR, 1998

“News”, Guest, BBC, 1998

“Quirks and Quarks”, Guest, CPR, 1998

“Space Shuttle”, Leap Frog Toys, Designed children’s educational astronomy toy, 1997-1998

Journal Publications

61. Riess, A. G., et al. 2006, "New Hubble Space Telescope Discoveries of Type Ia Supernovae at $z > 1$: Narrowing Constraints on the Early Behavior of Dark Energy", *ApJ*, 659, 98
60. Fruchter, A. S., et al. 2006, "Long gamma-ray bursts and core-collapse supernovae have different environments", *Nature*, 441, 463
59. Clocchiatti, A., et al. 2006, "Hubble Space Telescope and Ground-based Observations of Type Ia Supernovae at Redshift 0.5: Cosmological Implications", *ApJ*, 642, 1
58. Riess, A. G. and Livio, M., 2006, "The First Type Ia Supernovae: An Empirical Approach to Taming Evolutionary Effects in Dark Energy Surveys from SNe Ia at $z > 2$ ", *ApJ*, accepted
57. Li, W, et al, 2006, "Identification of the Red Supergiant Progenitor of Supernova 2005cs: Do the Progenitors of Type II-P Supernovae Have Low Mass?", *ApJ*, 641, 1060
56. Blondin, S, et al, 2006, "Using Line Profiles to Test the Fraternity of Type Ia Supernovae at High and Low Redshifts", *AJ*, 131, 1648
55. Strolger, L, Riess, A, 2006, "The Deepest Supernova Search is Realized In the Hubble Ultra Deep Field Survey", *AJ*, 131, 1629
54. Krisciunas, K, et al, 2005, "Hubble Space Telescope Observations of Nine High-Redshift ESSENCE Supernovae", *AJ*, 130, 2453
53. Riess, A. G., et al. 2005, "Cepheid Calibrations from the Hubble Space Telescope of the Luminosity of Two Recent Type Ia Supernovae and a Redetermination of the Hubble Constant", *ApJ*, 627, 579
52. Krisciunas, K., et al., 2005, "Hubble Space Telescope Observations of Nine High-Redshift ESSENCE Supernovae", *AJ*, 130, 2453
51. Thompson, R., et al, 2005, "The Near-Infrared Camera and Multi-Object Spectrometer Ultra Deep Field: Observations, Data Reduction, and Galaxy Photometry", *AJ*, 130, 1
50. Foley, R., 2005, "A Definitive Measurement of Time Dilation in the Spectral Evolution of the Moderate-Redshift Type Ia Supernova 1997ex", *ApJ*, 626, 11
49. Matheson, T., et al, 2005, "Spectroscopy of High-Redshift Supernovae from the ESSENCE Project: The First 2 Years", *AJ*, 129, 2352
48. Rhoads, J. E., et al, 2005, "A Redshift $z \approx 5.4$ Ly α Emitting Galaxy with Linear Morphology in the GRAPES/Hubble Ultra Deep Field", 621, 582
47. Strolger, L. G., et al. 2004, "The Hubble Higher z Supernova Search: Supernovae to $z \approx 1.6$ and Constraints on Type Ia Progenitor Models", *ApJ*, 613, 200
46. Dahlen, T., et al. 2004, "High-Redshift Supernova Rates", *ApJ*, 613, 189
45. Riess, A. G., et al. 2004, "Type Ia Supernova Discoveries at $z > 1$ From the Hubble Space Telescope: Past Deceleration and Constraints on Dark Energy Evolution", *ApJ*, 607, 665
44. Riess, A. G. et al. 2004, "Identification of Type Ia Supernovae at Redshift 1.3 and Beyond with the Advanced Camera for Surveys on HST", *ApJ Letters*, 600, 163
43. Barris, B. J., et al. 2003, "23 High Redshift Supernovae from the IfA Deep Survey: Doubling the SN Sample at $z > 0.7$ ", *ApJ*, 602, 571

42. Williams, B. F., et al. 2003, "Imaging and Demography of the Host Galaxies of High-Redshift Type Ia Supernovae", *AJ*, 126, 2608
41. Giavalisco, M., et al. 2003, "The Rest-Frame UV Luminosity Density of Star-Forming Galaxies at Redshifts $z > 3.5$ ", *ApJ Letters*, 600, 103
40. Dickinson, M., et al. 2003, "Color-selected galaxies at $z \approx 6$ in the Great Observatories Origins Deep Survey", *ApJ Letters*, 600, 99
39. Livio, M. & Riess, A. G., 2003, "Have the Elusive Progenitors of Supernovae Type Ia Been Discovered?", *ApJ*, 594, L93
38. Tonry, J. L., et al. 2003, "Cosmological Results from High- z Supernovae", *ApJ*, 594, 1
37. Blakeslee, J. P., et al., 2003, "Discovery of Two Distant Type Ia Supernovae in the Hubble Deep Field North with the Advanced Camera for Surveys", *ApJ*, 589, 693
36. Benitez, N., Riess, A. G., Nugent, P. E., Dickinson, M., Chornock, R., & Filippenko, A. V., 2002, "The magnification of SN 1997ff, the farthest known Supernova", *ApJ*, 577, L1
35. Livio, M., Riess, A. G., Sparks, W., 2002, "Will Jets Identify the Progenitors of Type Ia Supernovae?", 2002
34. Riess, A. G. et al., 2001, "The Farthest Known Supernova: Support for an Accelerating Universe and a Glimpse of the Epoch of Deceleration", *ApJ*, 560, 49
33. Turner, M. & Riess, A. G., 2001, "Do Type Ia Supernova Provide Evidence of Past Deceleration", *ApJ*, 569, 18
32. Li, W. et al., 2001, "The Unique Type Ia Supernova 2000cx in NGC 524", *PASP*, 113, 1178
31. Ajhar, E. A., Tonry, J. L., Blakeslee, J. P., Riess, A. G., and Schmidt, B. P., "Reconciliation of the Surface Brightness Fluctuations and Type Ia Supernovae Distance Scales", *ApJ*, 559, 584
30. Krisciunas, K., et al., 2001, "Optical and Infrared Photometry of the Type Ia Supernovae 1999da, 1999dk, 1999gp, 2000bk, and 2000ce", *AJ*, 122, 1616
29. Coil, A., et al. 2000, "Optical Spectra of Type Ia Supernovae at $z=0.46$ and $z=1.2$ ", *ApJ*, 544, L111
28. Modjaz, M. et al., 2001, "The Subluminous Type Ia Supernova 1998de in NGC 252", *PASP*, 113, 308
27. Riess, A. G., 2000, "The Case for an Accelerating Universe from Supernovae", *PASP Invited Reviews*, 112, 1284
26. Li, W., Filippenko, A. V., Riess, A. G., 2000, "Monte Carlo Simulations of Supernova Searches", *ApJ*, 546, 719
25. Li, W. et al., 2000, "A High Peculiarity Rate for Type Ia SNe", *ApJ*, 546,
24. Riess, A. G. et al., 2000, "Tests of the Accelerating Universe from Near IR Observations of a High-Redshift Type Ia Supernova", *ApJ*, 536, 100
23. Krisciunas, K. et al., 2000, "Uniformity of V minus Near Infrared Color Evolution of Type Ia Supernovae, and Implications for Host Galaxy Extinction Determination", *ApJ*, 530, 100
22. Clocchiatti, A. et al., 2000, "The Luminous Type Ic Supernova 1992ar at $z=0.145$ ", *ApJ*, 529, 661

21. Riess, A. G. et al., 1999, "The Rise Time of Nearby Type Ia Supernovae", *AJ*, 118, 2675
20. Riess, A. G. et al., 1999, "Is there an Indication of Evolution of Type Ia Supernovae from their Rise Times?", *AJ*, 118, 2668
19. Filippenko, A. V. et al., 1999, "A Black Hole in the X-Ray Nova Velorum 1993", *PASP*, 111, 969
18. Bloom, J. S. et al., 1999, "The unusual afterglow of the gamma-ray burst of 26 March 1998 as evidence for a supernova connection", *Nature*, 401, 453
17. Herrnstein, J. R. et al., 1999, "A geometric distance to the galaxy NGC 4258 from orbital motions in a nuclear gas disk", *Nature*, 400, 539
16. Riess, A. G. et al., 1999, "BVRI Photometry of 22 Distant Type Ia Supernovae", *AJ*, 117, 707
15. Jha, S. et al., 1999, "The Type-Ia Supernova 1998bu in M96 and the Hubble Constant", *ApJS*, 125, 73
14. Schmidt, B. P. et al., 1998, "The High-Z Supernova Search: Measuring Cosmic Deceleration and Global Curvature of the Universe Using Type Ia Supernovae", *ApJ*, 507, 46
13. Garnavich, P.M., et al., 1998, "Supernova Limits on the Cosmic Equation of State", *ApJ*, in press
12. Riess, A. G. et al. 1998, "Observational Evidence from Supernovae for an Accelerating Universe and a Cosmological Constant", *AJ*, 116, 1009
11. Garnavich, P. M. et al., 1998, "Constraints on Cosmological Models from Hubble Space Telescope Observations of High-z Supernovae" *ApJ Letters*, 493, 53
10. Riess, A. G., Nugent, P., Filippenko, A. V., Kirshner, R. P., Perlmutter, S. 1998, "Snapshot Distances to Type Ia Supernovae – All in 'One' Night's Work", *ApJ*, 504, 935
9. Zehavi, I., Riess, A. G., Kirshner, R. P., & Dekel, A., 1998, "A Local Hubble Bubble from Type Ia Supernovae?", *ApJ*, 503, 483
8. Riess, A. G., Davis, M, Baker, J., Kirshner, R. P. 1997, "The Velocity Field from Type Ia Supernovae Matches the Gravity Field from Galaxy Surveys", *ApJ Letters*, 448, 1
7. Riess, A. G. et al. 1997, "Time Dilation from Spectral Feature Age Measurements of Type Ia Supernovae", *AJ*, 114, 722
6. Riess, A. G., Press, W. H., Kirshner, R. P. 1996, "Is the Dust Obscuring Supernovae in Distant Galaxies the Same as Dust in the Milky Way?" *ApJ*, 473, 588
5. Riess, A. G., Press, W. H., Kirshner, R. P. 1996, "A Precise Distance Indicator: Type Ia Supernova Multicolor Light Curve Shapes" *ApJ*, 473, 88
4. Leibundgut, B. et al., 1996, "Time Dilation in the Light Curve of the Distant Type Ia Supernova SN 1995K" Leibundgut, B. et al., *ApJ*, 466, 21
3. Riess, A. G., Press, W. H., Kirshner, R. P. 1995, "Determining the Motion of the Local Group Using SN Ia Light Curve Shapes", *ApJ Letters*, 445, 91

2. Riess, A. G., Press, W. H., Kirshner, R. P. 1995, "Using SN Ia Light Curve Shapes to Measure the Hubble Constant", *ApJ Letters*, 438, L17
1. Rogers, R. D. & Riess, A. G., 1994, "Detection and Classification of CCD Defects with an Artificial Neural Network", *PASP*, 106, 532

Technical Reports

1. Riess, A. G., 2003, "On-orbit Calibration of ACS CTE Corrections for Photometry", STScI Instrument Science Report ACS 2003-09
2. Riess, A. G., 2002, "The Projected Growth of Hot Pixels on ACS WFC", STScI Instrument Science Report ACS 2002-09
3. Riess, A. G., 2002, "A First Look at Cosmic Rays on ACS", STScI Instrument Science Report ACS 2002-07
4. Riess, A. G., Mutchler, M., and van Orsow, D., 2002, "A First Look at Hot Pixels on ACS", STScI Instrument Science Report ACS 2002-06
5. Fall, M., et al. "Science with the Hubble Space Telescope in the Next Decade: The Case for an Extended Mission", 2003, white paper
6. Riess, A. G., "Growth of Hot Pixels and Degradation of CTE for ACS", 2002, in *HST Calibration Workshop*, S. Arribas, A. Koekemoer, & B. Whitmore, eds.
7. Gilliland, R. L. and Riess, A. G., "Extreme Red Sensitivity of ACS/WFC", 2002, in *HST Calibration Workshop*, S. Arribas, A. Koekemoer, & B. Whitmore, eds.
8. Riess, A.G., Hartig, G., and Bohlin, R., 2001, "ACS Filter Wheel Repeatability", STScI Technical Instrument Report, ACS 2002-02
9. Sparks, W.B., Postman, M., Ferguson, H., De Marchi, G., Riess, A., and Reid, I. N., 2001, "ACS Default Pure Parallel Program", STScI Instrument Science Report ACS 2001-06
10. Cawley, L. et al, 2001, "HST CCD Performance in the Second Decade: Charge Transfer Efficiency", STScI Instrument Science Report WFC3 2001-05
11. Riess, A. G., Biretta, J., and Casertano, S., 2001, "Shutter Jitter History Measured from INTFLATS", STScI Technical Instrument Report WFPC2 2001-01
12. Riess, A. G., 2000, "How CTE Affects Extended Sources", STScI Instrument Science Report WFPC2 00-04
13. Baggett, S., et al., 2000, "WFPC2 Cycle 9 Calibration Plan", STScI Instrument Science Report WFPC2 00-01
14. Casertano, S. et al., 2000, "Results of the WFPC2 Observatory Verification after SM3a", STScI Instrument Science Report WFPC2 00-02
15. Riess, A. G., Biretta, J., and Casertano, S., 1999, "Time Dependence of CTE from Cosmic Ray Tails", STScI Instrument Science Report WFPC2 99-04

Research Accomplishments

Johns Hopkins University, Physics and Astronomy Professor, 2005-present

Space Telescope Science Institute, Senior Science Staff, 1999-present

Reported observations of the twenty most distant supernovae, confirming the accelerating Universe interpretation of supernovae (by ruling out significant astrophysical dimming) and providing the first indication of a previous epoch of deceleration (This work is listed by NASA as the number one achievement of the Hubble Space Telescope and by Thomson ESI as the top cited paper in Space Science since 2006). Discovered transition redshift between the two epochs of expansion (i.e., cosmic jerk) to be $z \sim 0.5$. Reported improved constraints on the nature of dark energy and identified its presence at $z > 1$. Reported observational limits disfavoring hypothetical gray dust as a critical contaminant of cosmological supernovae. Developed new technique to measure CCD charge transfer efficiency (CTE). Produced first high-precision history of the degradation of CTE on HST CCD's on-orbit.

U.C. Berkeley, Miller Fellow, 1996-1999

First to report and publish observational evidence of an accelerating Universe and an apparent cosmological constant (Named. "Breathrough of the Year", Science Magazine, 1998). Reported first constraints on the nature of generalized dark energy. Established constraints on the local mass density from the peculiar flows of supernovae. Verified time dilation at high redshift by calibrating the passage of time for individual supernovae. Improved precision of measurement by a factor of 10 of the risetime of nearby supernovae.

Harvard University, Doctoral Student, 1992-1996

Dissertation: "Cosmological Measurements from Multicolor Light Curve Shapes of Type Ia Supernovae". Thesis advisor: Dr. Robert Kirshner. **Developed more precise and accurate technique to measure distances to type Ia supernovae (SNe Ia) which accounted for dust absorption.** Collected, reduced, and published observations for 22 local SNe Ia. Measured Hubble's constant and the motion of the local group of galaxies.

Biographical Statement

Dr. Adam G. Riess is a Professor of Physics and Astronomy at the Johns Hopkins University and a member of the Senior Science Staff at Space Telescope Science Institute, both in Baltimore, MD. Dr. Riess received his B.S. in physics from the Massachusetts Institute of Technology in 1992 where he was inducted into the Phi Beta Kappa Society. He received his Ph.D. from Harvard University in 1996 where he was the Margaret Weyerhaeuser Jewett Memorial Fellow. Between 1996 and 1999 Dr. Riess was a Miller Fellow at the University of California at Berkeley. He joined the faculty of Space Telescope Science Institute in 1999 and Johns Hopkins University in 2005.

Dr. Adam Riess is an expert in the use of type Ia supernovae for measuring the cosmological parameters and in the precise calibration of spaced-based detectors and the characterization of detector degradation due to radiation damage.

In 1998, Dr. Riess led the study yielding the first evidence that the expansion of the Universe was accelerating and was filled with Dark Energy, a result which was called the “Breathrough Discovery of the Year” by Science Magazine in 1998. In 2004 Dr. Riess confirmed the supernova-based discovery of dark energy by detecting the preceding, decelerating epoch of the Universe with the Hubble Space Telescope and by beginning to characterize the time-dependent nature of dark energy. Riess leads several large Hubble Space Telescope programs such as PANS-Probing Acceleration Now with Supernovae and SHOES -Supernovae, H_0 for the Equation of State of dark energy and is one of if not the single biggest recipient of time on the Hubble Space Telescope as a principle investigator of science programs. His work has been identified by NASA as the number one Achievement of the Hubble Space Telescope’s Top Ten Achievements (see <http://oposite.stsci.edu/pubinfo/pr/2005/12/pdf.pdf>) to date. His measurements currently provide some of the best constraints on the equation of state of the dark energy and according to Essential Science Indicators his paper of 2004 has been the top “Hot Paper in Space Science” in the last two years (since January 2006).

In 1999, Dr. Riess received the Robert J. Trumpler Award from the Astronomical Society of the Pacific for the doctoral thesis with the greatest impact in astrophysics. In 2000, Time Magazine named Dr. Riess one of one hundred Innovators of the Future and one of six in the Sciences. In 2002-2003, Dr. Riess received the Bok Prize from Harvard University, the AURA Science Award from STScI, and the Helen B. Warner Prize from the American Astronomical Society. In 2004 Dr. Riess received the Sackler Prize in the Physical Sciences from Tel Aviv University, a Townes Prize in Cosmology in 2005, and the Shaw Prize in Astronomy in 2006. Dr. Riess has presented his work as a participant on the Jim Lehrer News Hour, CNN, NOVA, NPR, and the BBC.