

Dr. Michael Bolte

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Education

Ph. D., Astronomy, University of Washington, December, 1987.

M. S., Physics, Florida State University, Tallahassee, 1979.

B. S., Physics, University of Central Florida, Orlando, 1977.

Positions

Director, University of California Observatories, 2006 –

Interim Director, UCO/Lick Observatory 2005 – 2006

Professor/Astronomer, UCO/Lick Observatory and the Department of Astronomy and Astrophysics, University of California at Santa Cruz, 1999 – present.

Associate Astronomer/Associate Professor, UCO/Lick Observatory and the Department of Astronomy and Astrophysics, University of California, Santa Cruz, 1997 – 1999.

Assistant Astronomer/Assistant Professor, UCO/Lick Observatory and the Department of Astronomy and Astrophysics, University of California, Santa Cruz, 1993 – 1996.

Hubble Postdoctoral Fellow, UCO/Lick Observatory, University of California at Santa Cruz, 1990–1993.

Postdoctoral Research Associate, Dominion Astrophysical Observatory, 1987–1990

Other Professional Activities

Member, CARA Board of Directors, 2005 –

Member, CELT Board of Directors, 2005 –

Member, Thirty-Meter Telescope Board of Directors, 2005 –

Member, Search Committee for the Kitt Peak Observatory Director 2006

Member, Search Committee for the Keck Observatory Director 2006
PI, Keck Observatory Low-Resolution Imaging Spectrometer upgrade 2005 – 2007
Chair, Science Advisor Committee for the Thirty Meter Telescope, 2004 – 2005
Co-Chair, Science Advisor Committee for the Thirty Meter Telescope, 2003 – 2004, 2005–2006
Member, Advanced Technology and Instrumentation NSF panel 2004
Chair, UC Keck Time Allocation Committee, 2004 –
Member, NSF Giant Segmented Mirror Telescope Science Working Group 2003 –
Co-Chair, Steering Committee for CELT 30m telescope, 2000 – 2003
Co-Chair, Science Steering Committee, W.M. Keck Observatory, 1999 – 2004
Member, NSF Astronomy Program Review Committee 2002
Chair, Galactic TAC, KPNO, Fall 2000
Member, STScI Hubble Fellow panel, 2000
NASA/NSF SIM Panel 1999
Co-PI, Keck Echelle Spectrograph and Imager, 1997–1999
Associate Chair, Department of Astronomy and Astrophysics, UCSC, 1998 – 2000
Shane 3m Telescope Scientist, 1998 – 1999
Chair, Keck Low-Resolution Imaging Spectrograph Users' Committee 1997 – 1999
Member, IRAF Users' Group, 1997 –
Member, Kitt Peak Time Allocation Committee 1994 – 1997
PI, Lick Observatory 3m Prime Focus Camera, 1996 – 1998
Member, Space Telescope Advisory Committee 1996
Member, National Science Foundation Panel, Galactic Structure, 1995
Member, Scientific Organizing Committee Aspen Center for Physics Winter Conference on the Extragalactic Distance Scale, 1992.
Member, Cerro Tololo Users' Committee 1990 – 1992

Grants/gifts to UCO

- 2007–2014, Gordon and Better Moore Foundation, “Construction of the TMT” (Co-PI), \$100M
- 2007–2009, Gordon and Better Moore Foundation, “Design and Development Phase for the TMT” (Co-PI), \$7.5M
- 2003–2006, Gordon and Betty Moore Foundation, “Design and Development Phase for the CELT 30m Telescope” (Co-PI), \$17.5M
- 2007, Ken and Gloria Levy Foundations, \$600k for Automatic Planet Finder Spectrometer
- 2007, Change Happens Foundation, \$200k for LRIS–R upgrade

Grants as PI

- 2005–2008, NSF “Abundance Patterns in Extremely Metal–poor Stars: SNII, Pop III and the early Galaxy”, \$152,403
- 2005–2008, NSF “Stellar Physics from Complete Star Samples in Globular Clusters”, \$51,790
- 2005–2007, CARA “LRIS–R Detector Upgrade”, \$1.3M
- 2006, NSF supplement to “Abundances for Extremely Metal–poor Stars”, \$31,250
- 2003–2006, NSF “White Dwarfs in Open Clusters”, \$274,000
- 2001–2004, NSF “Fundamental Stellar Physics from Large–Sample Globular Cluster Photometry” (with Eric Sandquist, San Diego State University)
- 2001–2004, NSF “Abundances for Extremely Metal–poor Stars” \$198,00
- 1999–2002, NSF “The Galaxy Luminosity Function at $z=0$ ” \$293,500
- 1999 STScI “The Completion of the Age Profile of the Outer Halo”, \$14,868
- 1999 STScI “The White Dwarf Luminosity Function in NGC 188”, \$36,565
- 1998–1999 CalSpace “The Galaxy Luminosity Function at $z=0$ ”, \$28,927
- 1995–1997, STScI “Blue Straggler Stars, Stellar Collisions and the Fate of Globular Clusters”, \$31,597
- 1995–1996, CalSpace “A Critical Test of Pop II Stellar Evolution Models”, \$12,285
- 1995–1999, NSF “Globular Clusters, Stellar Collisions, Dark Matter Halos and the Age of the Universe Problem”, \$148,000
- 1994–1996, STScI, “Ages for the Oldest Star Clusters in the LMC”, \$43,923

1994–1996, STScI, “The Formation of the Galaxy: Ages for Globular Clusters in the Remote Halo”, \$21,084

1994–1996 STScI, “Low Luminosity Stars in Globular Clusters”, \$26,309

1994–1995 CalSpace, “The Age of the Universe Problem”, \$23,002

1990–1993 STScI, “The Formation of the Galaxy Utilizing Investigations of Globular Clusters”, \$165,498

Papers Published in Refereed Journals or Books

1. “The Lower Mass Limit for Supernova Progenitors and the High–Mass End of the Initial–Final Mass Relation from White Dwarfs in the Open Cluster M35 (NGC 2168).”, Williams, Kurtis A., Bolte, Michael, Koester, Detlev, 2008, ApJ, in press.
2. “The White Dwarf Population in NGC 1039 (M34) and the White Dwarf Initial–Final Mass Relation”, Rubin, Kate H. R., Williams, Kurtis A., Bolte, Michael, Koester, Detlev., 2008, AJ, 135, 2163.
3. “Detailed Abundances for 28 Metal–poor Stars: Stellar Relics in the Milky Way”, Lai, David K.; Bolte, Michael; Johnson, Jennifer A.; Lucatello, Sara; Heger, Alexander; Woosley, S. E., 2008, ApJ, 681, 1542.
4. “Carbon and Strontium Abundances of Metal–poor Stars”, Lai, David K.; Johnson, Jennifer A.; Bolte, Michael; Lucatello, Sara, 2007, ApJ, 667, 1185
5. “Photometry of the Globular Cluster NGC 5466: Red Giants and Blue Stragglers”, 2007, Fekadu, Nassissie; Sandquist, Eric L.; Bolte, Michael, ApJ, 663, 277
6. “A Photometric and Spectroscopic Search for White Dwarfs in the Open Clusters NGC 6633 and NGC 7063”, Williams, Kurtis A.; Bolte, Michael, 2007, AJ, 113, 1490
7. “The Blue Straggler Population of the Globular Cluster M5: Comparison with M3”, (Warren, S. R., Sandquist, E. L., Bolte, M.) 2006, ApJ, 648, 1026
8. “A Hot DQ White Dwarf in the Open Star Cluster M35”, (Williams, K. A., Liebert, J, Bolte, M., & Hanson, R. B.), 2006, ApJ, 643, L12
9. “The Unusual Luminosity Function of the Globular Cluster M10” (Pollard, D. L., Sandquist, E. L., Hargis, J. R. & Bolte, M.) 2005, ApJ, 628, 72
10. “The Blue Straggler and Main–Sequence Binary Population of the Low–Mass Globular Cluster Palomar 13” (Clark, L. L., Sandquist, E. L. & Bolte, M.) 2004, AJ 128, 3019

11. "An Empirical Initial-Final Mass Relation from Hot, Massive White Dwarfs in NGC 2168 (M35)", (Williams, K., Bolte, M. & Koester, D.), 2004, ApJ, 615, 49.
12. "Abundances of Extremely Metal-poor Star Candidates", (Lai, D. K., Bolte, M., Johnson, J. A. & Lucatello, S.), 2004, AJ, 128, 2402.
13. "Spectroscopic Identification of Faint White Dwarf Candidates in the Praesepe Open Star Cluster", (Williams, K. A., Bolte, M. & Leibert, J. W.), 2004, AJ, 128, 1784.
14. "Exploring the Upper Red Giant and Asymptotic Giant Branches: The Globular Cluster M5", (Sandquist, E. L. & Bolte, M.), 2004, AJ, 128, 1784.
15. "The Luminosity Function and Color-Magnitude Diagram of the Globular Cluster M12", (Hargis, J. R., Sandquist, E. L. & Bolte, M.), 2004, ApJ, 611, 323.
16. "The s-Process in Metal-Poor Stars: Abundances for 22 Neutron-Capture Elements in CS 31062-050", (Johnson, J. A. & Bolte, M.), 2004, ApJ, 605, 462.
17. "Photometry and Spectroscopy of GRB 030329 and Its Associated Supernova 2003dh: The First Two Months", (Matheson, T., et al.), 2003, ApJ, 599, 394.
18. "The White Dwarf Deficit in Open Clusters: Dynamical Processes", (Fellhauer, M., Lin, D. N. C., Bolte, M., Aarseth, S. J. & Williams, K. A.), 2003, ApJ, 595, 53.
19. "The C IV Mass Density of the Universe at Redshift 5", (Pettini, M., Madau, P., Bolte, M., Prochaska, J. X., Ellison, S. L. & Fan, X.), 2003, ApJ, 594, 695.
20. "The Missing Intermediate Luminosity Galaxies in the Leo I Group", (Flint, K., Bolte, M. & Mendes de Oliveira, C.) 2003, Ap&SS, 285, 191.
21. "Toward a Precise Measurement of Matter Clustering: Ly Forest Data at Redshifts 2-4", (Croft, R. A. C., Weinberg, D. H., Bolte, M., Burles, S., Hernquist, L., Katz, N., Kirkman, D., & Tytler, D.) 2002, ApJ, 581, 20.
22. "Abundances in the Very Metal-poor s-process-rich Star CS 22183-015", (Johnson, J. A. & Bolte, M.), 2002, ApJ, 579, L87.
23. "The r-process in the Early Galaxy", (Johnson, J. A. & Bolte, M.), 2002, ApJ, 579, 616.
24. "Determination of the Dark Matter Profile of A2199 from Integrated Starlight", (Kelson, D. D., Zabludoff, A. I., Williams, K. A., Trager, S. C., Mulchaey, J. S. & Bolte, M.), 2002, ApJ, 576, 720.

25. "The White Dwarf Cooling Sequence in the Old Open Cluster NGC 188", (Andreuzzi, G., Richer, H. B., Limongi, M. & Bolte, M.), 2002, A&A, 390, 961.
26. "ESI, a New Keck Observatory Echellette Spectrograph and Imager", (Sheinis, A. I., Bolte, M., Epps, H. W., Kibrick, R. I., Miller, J. S., Radovan, M. V., Bigelow, B. C. & Sutin, B. M.), 2002, PASP, 114, 851.
27. "Globular Clusters around Galaxies in Groups", (Da Rocha, C., de Oliveira, C. M., Bolte, M., Ziegler, Bodo L. & Puzia, T. H.), 2002, AJ, 123, 690.
28. "Tidal dwarf galaxies in the Stephan's Quintet?", Amram, P., Mendes de Oliveira, C., Plana, H., Balkowski, C. & Bolte, M.), 2002 Ap&SS, 281, 397.
29. "Thorium Ages for Metal-poor Stars", (Johnson, J. A. & Bolte, M.), 2001, ApJ, 554, 888.
30. "The Z=0 Galaxy Luminosity Function. I. Techniques for Identification of Dwarf Galaxies at ~10 MPC", (Flint, K., Metevier, A. J., Bolte, M. & Mendes de Oliveira, C.), 2001, ApJS, 134.
31. "Candidate Tidal Dwarf Galaxies Associated with Stephan's Quintet", (Mendes de Oliveira, C., Plana, H., Arman, P., Balkowski, C. & Bolte, M.) 2001, AJ, 121, 252
32. "The Dwarf Galaxy Population of the Dorado Group Down to $M_V \sim -11$ ", (Carrasco, E. R., Mendes de Oliveira, C., Infante, L. & Bolte, M.), 2001, AJ, 121, 148.
33. "Neutron-Capture Element Abundances in the Globular Cluster M15", (Snedden, C., Johnson, J. A., Kraft, R. P., Smith, G. H., Cowan, J. J. & Bolte, M.), 2000, ApJ, 536, L85.
34. "Abundances of Neutron-rich Elements in the Globular Cluster M15", (Snedden, C., Kraft, R. P., Johnson, J. & Bolte, M.), 2000, ApJ, 536, L85.
35. "Globular Cluster Giant-Branch Luminosity Functions: "Extra Stars" and Deep Mixing", (Langer, G. E., Bolte, M. & Sandquist, E.), 2000, ApJ 529, 936.
36. "Ages for the Oldest Clusters in the Large Magellanic Clouds: Hubble Space Telescope Observations of NGC 1466, NGC 2257 and Hodge 11", Johnson, J. J., Bolte, M., Stetson, P. B., Hesser, J. E., 1999, ApJ, in press.
37. "Detection and Velocities of H Emission Regions in Stephan's Quintet", (H. Plana, C. Mendes de Oliveira, P. Amram, M. Bolte, C. Balkowski, & J. Boulesteix), 1999, ApJ, 516, L69.
38. "'Extra' Stars and Deep Mixing in Globular Cluster Giants", Langer, G. E., Bolte, M. & Sandquist, E., 1999, in press, ApJ.

39. "Wide-Field CCD Photometry of the Globular Cluster M30", Sandquist, E., Bolte, M. & Langer, G. E., 1999, ApJ, 518, 262. ApJ.
40. "Ages for Globular Clusters in the Outer Galactic Halo: The Second Parameter Clusters Palomar 3, Palomar 4 and Eridanus", (Stetson, P. B., Bolte, M., Harris, W. E., Hesser, J. E., Bell, R. A., van den Bergh, S., Johnson, J. A., Bond, H. E., Fahlman, G. G. & Richer, H. B.), 1999, AJ, 117, 247.
41. "Extended Ionized Gas Emission and Kinematics of the Compact Group Galaxies in HCG 16: Signatures of Mergers", (Mendes de Oliveira, C., Plana, H., Amram, P., Bolte, M. & Boulesteix, J.) ApJ, 507, 691.
42. "Keck HIRES Abundances for Stars in the Dwarf Spheroidal Galaxy Draco", (Shetrone, M., Bolte, M. & Stetson, P. B.), 1998, AJ, 115, 1888.
43. "V, I Photometry of Nearby Globular Clusters: M3, M5, M13 and M92", (Johnson, J. A. & Bolte, M.), 1997, AJ, 115, 693.
44. "Spectroscopic Evidence for Small Metallicity Variations Among M92 Giants", (Langer, G. E., Fischer, D., Sneden, C. & Bolte, M.) 1997, AJ, 115, 685.
45. "NGC 2419, M92 and the Age Gradient in the Galactic Halo", Harris, W.E., Bell, R. A., Vandenberg, D. A, Bolte, M., Stetson, P. B., Hesser, J. E., van den Bergh, S., Bond, H. E., Fahlman, G. G., Richer, H. B.) 1997, AJ, 114, 1030.
46. "Galactic Globular Cluster Metallicity Scale from the Ca II Triplet I. Catalog", (Rutledge, G. A., Hesser, J. E., Stetson, P. B., Mateo, M., Simard, L., Bolte. M., Friel, E. D. & Copin, Y.) 1997, PASP, 109, 883.
47. "White Dwarfs in Globular Clusters: Hubble Space Telescope Observations of M4", (with 14 authors), 1997, ApJ, 484, 741.
48. Anaemia Reveals Star's Great Age, (M. Bolte) 1997, Nature, 385, 205.
49. "Composition Mixing during Blue Straggler Formation and Evolution", (Sandquist, E. L., Bolte, M. & Hernquist, L.) 1997, ApJ, 477, 335.
50. "Globular Clusters: Old", in Critical Dialogues in Cosmology, 1997, ed. N. G. Turok, Princeton University Press, p156.
51. "The Age of the Universe", (Spergel, D. N., Bolte, M. & Freedman, W.), 1997, Proceedings of the National Academy of the Sciences, v94, 6579.
52. "CCD Photometry of the Globular Cluster M5. I. The Color-Magnitude Diagram and Luminosity Functions", (Sandquist, E. L., Bolte, M., Stetson, P. B. & Hesser, J. E.), 1996, ApJ, 470, 910.
53. "BVRI Light Curves for 29 Type Ia Supernovae", (with 37 authors), 1996, AJ, 112, 2408.

54. "The Age of the Galactic Globular Cluster System", (VandenBerg, D. A., Bolte, M. & Stetson, P. B.) 1996, Annual Review of Astronomy and Astrophysics, 34, 461.
55. "The Relative Ages of Galactic Globular Clusters", Stetson, P. B., VandenBerg, D. A. & Bolte, M.), 1996, PASP, 108, 560.
56. "WFPC2 Photometry in Outer Halo Clusters", (Harris, W. E., Stetson, P. B., Bolte, M., Fahlman, G. G., Hesser, J. E., McClure, R. D., Richer, H., Vandenberg, D. A. & van den Bergh, S.) in "Calibrating Hubble Space Telescope: Post Servicing Mission", ed. A. Koratkar and C. Leitherer, 1995, pg. 283.
57. "Anticorrelated CN and CH Variations on the 47 Tucanae Main-Sequence Turnoff", (Briley, M., Hesser, J. E., Bell, R. A., Bolte, M. & Smith, G.) 1994, AJ, 108, 2183
58. "Oxygen Abundances in Halo Giants. VI. M10, A Globular Cluster with Metallicity Similar to M3 and M13", (Kraft, R. P., Sneden, C., Langer, G. E., Shetrone, M. & Bolte, M.) 1995, AJ, 109, 2586.
59. "Fossil Signatures of Ancient Accretion Events in the Halo", (Johnston, K. V., Hernquist, L. & Bolte, M.), 1996, ApJ, 465.
60. "Conflict over the Age of the Universe", (Bolte, M. & Hogan, C. J.), 1995, Nature, 376, 399
61. "CCD Photometry of the Globular Cluster M5. I. The Color-Magnitude Diagram and Luminosity Functions", (Sandquist, E. L., Bolte, M., Stetson, P. B. & Hesser, J. E.), 1996, ApJ, 465, 278.
62. "Hubble Space Telescope Observations of White Dwarfs in the Globular Cluster M4", (with 12 authors), ApJ, 451, L17.
63. "A Merger Origin for X Structures in S0 Galaxies", (Mihos, C. J., Walker, I. A., Hernquist, L., Mendes de Oliveira, C. & Bolte, M), 1995, ApJ, 447, L87.
64. "Modeling the Radial Distribution of Blue Straggler Stars in M3", (Sigurdsson, S., Davies, M. B. & Bolte, M.), 1994, ApJL, 431, 115.
65. "RR-Lyrae Stars and the Color Magnitude Diagram of the Globular Cluster NGC 6388" (Silbermann, N. A., Smith, H. A., Bolte, M. & Hazen, M. L.), 1994, AJ, 107, 1764.
66. "AH Cam – A Metal-Rich RR Lyrae Star with the Shortest Known Blazhko Period": (Smith, H. A., Matthews, J. M., Lee, K. M., Williams, J., Silbermann, N. A., & Bolte, M.), 1994, AJ, 107, 679.
67. "The Expanding Atmosphere Method Applied to SN 1992am at $cz=14,600$ km/s", (with 18 authors), 1994, AJ, 107, 1444.

68. "The Luminosity Function from `tex2html_wrap_inline60` in the Globular Cluster M30: Is There a Problem with the Standard Stellar Models?", (Bolte, M.), 1994, *ApJ*, 431, 223.
69. "Measuring Globular Cluster Ages with High Precision", invited talk in *Galaxy Evolution: The Milky Way Perspective*, (Bolte, M.) 1993, ASP Conf. Series, v.49, p.143, ed. S. W. Majewski.
70. "Canada-France-Hawaii Telescope observations of globular cluster cores – Blue straggler stars in M3", (Bolte, M., Hesser, J. E. & Stetson, P.), 1993, *ApJL*, 408, 89.
71. "Globular Cluster Ages and the Formation of the Galactic Halo", (Bolte, M.) 1992, *PASP*, 104, 794.
72. "Simulations of Globular Cluster Systems around Merger Remnants", (Hernquist, L. & Bolte, M.), 1992, invited review in *The Globular Cluster – Galaxy Connection*, ASP Conf. Series v48, p788, eds. G. Smith & J. Brodie.
73. "Do Age Differences Exist Between Galactic Globular Clusters?", (Bolte, M.), invited review *The Globular Cluster – Galaxy Connection*, ASP Conf. Series v.48, p.60, eds. G. Smith & J. Brodie.
74. "CCD Photometry of the Globular Cluster NGC 288 I: Blue Straggler Stars and Main-sequence Binaries", (Bolte, M.), 1992, *ApJS*, 82, 145.
75. "The Photometric Binary Stars in Praesepe and the Search for Globular Cluster Binaries", (Bolte, M.), 1991, *ApJ*, 376, 514.
76. "The Near-Infrared Spectra of LMXB and Related Objects", (Cowley, A. P., Schmidtke, P. C., Crampton, D., Hutchings, J. B. & Bolte, M.) 1991, *ApJ*, 373, 228.
77. "Steps Toward Determination of the Size and Structure of the Broad-line Region in the Active Galactic Nuclei. II. An Intensive Study of NGC 5548 at Optical Wavelengths", (with 63 collaborators), 1991, *ApJ*, 368, 119.
78. "An Overview of the Galactic Cluster Systems", (Hesser, J. & Bolte, M.) 1991, invited review for *The Astronomy and Astrophysics Encyclopedia*, Van Nostrand Reinhold, ed. S. Maran.
79. "Measuring Age Differences Among Globular Clusters Having Similar Metallicities: A New Method and First Results", (VandenBerg, D. A., Bolte, M. & Stetson, P. B.) 1990, *AJ*, 100, 445.
80. "Age Differences Among Globular Clusters" (invited review at the 1989 Kingston Meeting of Theoretical Astrophysics), (Bolte, M.), 1990, *Journal of the Royal Astronomical Society of Canada*, 84, 137.

81. "CCD Photometry of the Globular Cluster NGC 1261", (Bolte, M. & Marleau, F.), 1989, PASP, 101, 1088.
82. "Optical Spectra near Maximum Light of the Type Ia Supernova 1989B", (Bolte, M., Saddlemeyer, L., Mendes de Oliveira, C. & Hodder, P.), 1989, PASP, 101, 921.
83. "The Age of the Globular Cluster NGC 288, the Formation of the Galactic Halo, and the Second Parameter Problem", (Bolte, M.), 1989, AJ, 97, 1688.
84. "Mass Segregation in the Globular Cluster M30", (Bolte, M.), 1989, ApJ, 341, 168.
85. "CCD Photometry of the Globular Cluster Pal 12", (Stetson, P. B., Vandenberg, D. A., Bolte, M., Hesser, J. E. & Smith, G.), 1989, AJ, 97, 1360.
86. "The Low Luminosity X-Ray Sources in Omega Centauri", (Margon, B. & Bolte, M.), 1987, ApJ, 321, L61.
87. "Deep CCD Photometry of the Globular Cluster NGC 7099", (Bolte, M.), 1987, ApJ, 319, 760.
88. "An X-ray Selected White Dwarf of Intermediate Luminosity", (Margon, B., Bolte, M. & Anderson, S. F.), 1987, AJ, 93, 1229.
89. "CCD Photometry of the Main Sequence of the Globular Cluster NGC 362", (Bolte, M.), 1987, ApJ, 315, 469.
90. "CH Cygni in 1983-1984: Transition to a Real Symbiotic Star?", (Wallerstein, G., Bolte, M., Mateo, M. & Whitehill-Bates, P.), 1986, PASP, 98, 330.
91. "Infrared Photometry of Cataclysmic Variables. I. Discovery of Ellipsoidal Variati Virginis", (Mateo, M., Szkody, P. & Bolte, M.), 1985, PASP, 97, 45.