

JEFFREY P. GARDNER

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Place and date of birth: Pittsburgh, Pa., USA, 6 April 1971.
Ethnic Classification: Caucasian Hispanic
Citizenship: USA

Education

UNIVERSITY OF WASHINGTON
Seattle, Washington
1993–2000

Ph.D. in Astronomy, 2000. Advisor: Tom Quinn
Master of Science in Astronomy, 1994.

CORNELL UNIVERSITY
Ithaca, New York
1989–1993

BA (Cum Laude) in Physics, Astronomy concentration, 1993.

Principle Research Interests

- Galaxy Formation and Evolution, Absorption Line Systems, Large-Scale Structure, Cosmology
- Data Mining of Simulated and Survey Data, Grid Computing, Webservice Development
- High-Performance Computing, Massively Parallel Platforms, Computational Science

Professional Appointments and Internships

Senior Scientific Specialist, Pittsburgh Supercomputing Center	2003–
Adjunct Assistant Professor, University of Pittsburgh Dept. of Physics & Astronomy	2003–
Postdoctoral Research Associate, University of Pittsburgh Dept. of Physics & Astronomy	2001–2003
NSF-NATO Postdoctoral Fellow, Institute of Astronomy, University of Cambridge	2000–2001
Teaching Assistant, University of Washington, Dept. of Astronomy	1994–1996
Visiting Scientist, NASA/Goddard Space Flight Center, HPCC Program, ESS directorate	1994
High Performance Computing Program, NASA/Goddard Space Flight Center	1994

Grants

NASA Advanced Information Systems Research Program, P.I.	2004–2008
National Virtual Observatory PACI/TeraGrid Grant, co-I	2004–
Hubble Space Telescope Theory Grant, P.I.	2003–2005

Fellowships

NSF-NATO Postdoctoral Fellow	2000–2001
NASA Graduate Student Research Fellow	1997–2000
National Science Foundation Graduate Research Fellow	1993–1997
Dorothy Danforth-Compton Minority Graduate Fellow	1993–2000

Experience

INVITED TALKS

Allegheny Observatory Public Lecture Series, Pittsburgh, PA	2004
Pittsburgh Supercomputing Center, Pittsburgh, PA	2002
University of Pittsburgh, Pittsburgh, PA	2001
Osservatorio Astronomico di Brera, Merate, Italy	2000
Cambridge University, Cambridge, UK	2000
NASA/Goddard Space Flight Center, Greenbelt, MD	2000
Durham University, Durham, UK	1998

TALKS AT WORKSHOPS AND SYMPOSIA

Supercomputing 2004, Pittsburgh, PA	2004
ADASS Symposium, Pasadena, CA	2004
SDSS Collaboration Meeting, Pittsburgh, PA	2004
NVO Teem Meeting, Aspen, CO	2004
NVO Teem Meeting, Pasadena, CA	2003
ESO Workshop on Deep Fields, Garching, Germany	2000
Large Scale Structure: Tracks and Traces, A.I.P., Potsdam, Germany	1997
Generation of Large Scale Cosmological Structures, NATO ASI, Erice, Italy	1996

OTHER WORKSHOPS AND SYMPOSIA

Galaxy Evolution: Theory and Observations, Cozumel, Mexico	2002
190th Meeting of the American Astronomical Society, Winston-Salem, NC	1997
Visual Supercomputing Institute, NCSA	1996
Jerusalem Winter School on Formation of Structure in the Universe, Hebrew University	1995
High Performance Computing Program, NASA/Goddard Space Flight Center	1994
The Analysis of Emission Lines, Space Telescope Science Institute	1994
103rd Meeting of the Astronomical Society of the Pacific, Laramie, WY	1991

OBSERVATIONS

Kitt Peak National Observatory, AZ: Rotation curves of high-redshift spiral galaxies.
Arecibo Observatory, PR: 21-cm HI velocity profiles of spiral galaxies.
Apache Point Observatory, NM: Spectrophotometry of spiral galaxies.
Cornell Radio Telescope, Ithaca, NY: 21-cm HI spectroscopy of spiral galaxies.
Hartung-Boothroyd Observatory, Mt. Pleasant, NY: Photometry of variable stars.

Computer Skills

- Extensive training and experience in Grand-Challenge-scale scientific program development, computation, data analysis, and data mining.
- Extensive training and experience in parallel application development and performance tuning using both distributed-memory and shared-memory models: MPI, PVM, and POSIX threads, SHMEM, and OpenMP.
- Extensive training and experience on Cray T3D/E, Cray XT3, Convex SPP, SGI Origin, IBM SPx, and Linux Beowulf systems.
- Extensive training and experience in C, Fortran and Fortran90/HPF as well as proficiency in C++, Perl, and Python.
- Proficiency in data realization and visualization.
- Proficiency in Linux and IRIX system administration.

Publications—Refereed Journals

PRIMARY CONTRIBUTIONS

- J.P. Gardner & D. Reed, 2005. “Angular Momentum Properties of Dark Matter Haloes,” in preparation.
- N. Bouché, J.P. Gardner, N. Katz, D.H. Weinberg, R. Davè, & J.D. Lowenthal 2005. “On the Halo Mass of Damped Ly-Alpha Absorbers in SPH Simulations,” *Ap. J.*, submitted.
- J.P. Gardner, N. Katz, L. Hernquist, & D.H. Weinberg 2003. “The Influence of Ω_{baryon} on High-Redshift Structure,” *Ap. J.*, **587**, 1.
- F. Governato, L. Mayer, J. Wadsley, J.P. Gardner, B. Willman, T. Quinn, J. Stadel, & G. Lake 2004. “The Formation of a Realistic Disk Galaxy in Lambda Dominated Cosmologies,” *Ap. J.*, **607**, 688.
- D. Reed, J.P. Gardner, T. Quinn, J. Stadel, M. Fardal, G. Lake, & F. Governato 2003. “Evolution of the Mass Function of Dark Matter Halos,” *M.N.R.A.S.*, **246**, 565.
- J.P. Gardner 2001. “Dependence of Halo Properties on Interaction History, Environment and Cosmology,” *Ap. J.*, **557**, 616.
- J.P. Gardner, N. Katz, L. Hernquist, & D.H. Weinberg 2001. “Simulations of Damped Lyman-Alpha and Lyman Limit Absorbers in Different Cosmologies: Implications for Structure Formation at High Redshift,” *Ap. J.*, **559**, 131.
- F. Governato, J.P. Gardner, J. Stadel, T. Quinn, & G. Lake 1999. “On the Origin of Early-Type Galaxies and the Evolution of the Interaction Rate in the Field,” *A.J.*, **117**, 1651.
- J.P. Gardner, N. Katz, L. Hernquist, & D.H. Weinberg 1997. “The Population of Damped Lyman-Alpha and Lyman Limit Systems in the Cold Dark Matter Model,” *Ap. J.*, **484**, 31.
- J.P. Gardner, N. Katz, D.H. Weinberg, & L. Hernquist 1997. “Testing Cosmological Models Against the Abundance of Damped Lyman-Alpha Absorbers,” *Ap. J.*, **486**, 42.

SECONDARY CONTRIBUTIONS

- D. Reed, F. Governato, T. Quinn, J.P. Gardner, J. Stadel, G. Lake, & 2005. “Dark Matter Subhaloes in Numerical Simulations,” *M.N.R.A.S.*, **357**, 82, submitted, astro-ph/0406034.
- I. Kayo, Y. Suto, R.C. Nichol, J. Pan, I. Szapudi, Connolly, A.J., J.P. Gardner, B. Jain, G. Kulkarni, T. Matsubara, R. Sheth, A.S. Szalay, & J. Brinkmann 2004. “Three-Point Correlation Functions of SDSS Galaxies in Redshift Space: Morphology, Color, and Luminosity Dependence,” *PASJ*, **56**, 415.
- D. Reed, F. Governato, L. Verde, J.P. Gardner, T. Quinn, J. Stadel, D. Merritt, & G. Lake, 2004. “Evolution of the Density Profiles of Dark Matter Haloes,” *M.N.R.A.S.*, **357**, 82.
- M.A. Fardal, N. Katz, J.P. Gardner, L. Hernquist, D.H. Weinberg, & R. Davé 2001. “Cooling Radiation and the Lyman-alpha Luminosity of Forming Galaxies,” *Ap. J.*, **562**, 605.
- A. Aguirre, L. Hernquist, N. Katz, J.P. Gardner, D.H. Weinberg, & R. Davé 2001. “Enrichment of the Intergalactic Medium by Radiation Pressure-driven Dust Efflux Forming Galaxies,” *Ap. J.*, **556**, L11.
- A. Aguirre, L. Hernquist, J. Schaye, N. Katz, D.H. Weinberg, & J.P. Gardner 2001. “Metal Enrichment of the Intergalactic Medium in Cosmological Simulations,” *Ap. J.*, **561**, 521.
- A. Aguirre, L. Hernquist, J. Schaye, N. Katz, D.H. Weinberg, & J.P. Gardner 2001. “Metal Enrichment of the Intergalactic Medium at $z=3$ by Galactic Winds,” *Ap. J.*, **560**, 599.
- P.E. Johnson, K.V. Vogler, & J.P. Gardner 1993. “Effects of Surface Roughness on Thermal Emission Spectra,” *J. Geophys. Res.*, **296**, 331.

Publications—Other

- E. Walker, V. Litvin, & J.P. Gardner 2005. “Virtualizing the NSF TeraGrid for Parametric Sweep Applications,” in *Proceedings of the 14th IEEE International Symposium on High Performance Distributed Computing*, submitted.
- J.P. Gardner & A.J. Connolly, 2004. “A Framework for Parallel Data Analysis on a Distributed Grid,” in it Proceedings of the ADASS XIV Meeting, 10/2004, in press.
- J.P. Gardner, 2002. “How Accurate are Halo Spin Parameters Determined from N-Body Simulations?” in *Proceedings of Galaxy Evolution: Theory & Observations, Cozumel 2002*, RevMexAA.
- R. Dave, J.P. Gardner, L. Hernquist, N. Katz, & D.H. Weinberg 1999. “The Nature of Lyman Break Galaxies in Cosmological Hydrodynamic Simulations,” in *Proceedings of Rencontres Internationales de l’IGRAP, Clustering at High Redshift, Marseille 1999*, ASP Conference Series Vol. 200, p. 173, astro-ph/9910220.
- D.H. Weinberg, R. Dave, J.P. Gardner, L. Hernquist, & N. Katz 1999. “Theoretical Modeling of the High Redshift Galaxy Population,” in *Photometric Redshifts and High Redshift Galaxies*, ASP Conference Series Vol. 191, p. 341, astro-ph/9908133.
- J.P. Gardner, N. Katz, L. Hernquist, & D.H. Weinberg 1997. “Testing Cosmological Models Using Damped Lyman-Alpha Absorbers,” in *Proceedings of the Third Erice School on Particle Astrophysics: Generation of Large Scale Cosmological Structures, NATO ASI 951117*, Kluwer, Dordrecht, 1997.
- J.P. Gardner, N. Katz, D.H. Weinberg, & L. Hernquist 1997. “Testing Cosmological Models using Damped Lyman-Alpha Systems,” in *Proceedings of the 12th Potsdam Cosmology Workshop: Large Scale Structure: Tracks and Traces*, World Scientific, Singapore, 1997.
- T.L. Sterling, P.R. Merkey, D.F. Savarese, & J.P. Gardner 1995. “An Initial Evaluation of the Convex SPP-1000 for Earth and Space Science Applications,” in *Proceedings of the First IEEE Symposium on High-Performance Computer Architecture*.

Primary Academic Referents

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Additional Referents

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