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Date of Birth: July 23, 1973 Citizenship: U.S.

EMPLOYMENT

2007 – present Associate Professor of Physics, *University of California at Santa Cruz*
2003 – 2007 Assistant Professor of Physics, *University of California at Santa Cruz*
2000 – 2003 Member, *Institute for Advanced Study*
1996 – 2000 Graduate Research and Teaching Assistant, *Harvard University*
1995 Astronomer, *Harvard-Smithsonian Center for Astrophysics*

EDUCATION

2000 Ph.D., Astronomy, *Harvard University*
1998 M.S., Astronomy, *Harvard University*
1995 B.S., Mathematics/Physics, *Brown University*

HONORS AND AWARDS

2005 – 2006 Pre-Tenure Faculty Development Award
University of California, Santa Cruz
2004 – 2005 Non-Tenured Faculty Development Award
University of California, Santa Cruz
2000 – 2003 Keck Fellowship, *Institute for Advanced Study*
1999 – 2000 John Parker Merit Scholarship, *Harvard University*
1998 & 1999 Award for Undergraduate Teaching, *Harvard University*

- 1995 Finalist, Leroy Apker Prize for Achievement in Physics
Brown University
- 1995 Bruce Lindsay Award for Physics, *Brown University*
- 1994 – 1995 Barry M. Goldwater Scholar, *Brown University*

PROFESSIONAL ACTIVITIES

- 2007 – Present Proposal reviewer, National Science Foundation, France-Berkeley Fund
- 2005 – Present Co-Founder & Associate Scientific Director,
The Foundational Questions Institute (FQXi; at fqxi.org)
- 2003 – Present Member, *SCIPP*
- 2003 – Present Reviewer, Undergraduate Physics Texts, *Thomson Learning Co.*
- 1999 – Present Peer Reviewer, *ApJ, MNRAS, Nature, A&A, Phys. Rev., C&QG, JCAP, and PRL*

PUBLISHED WRITINGS IN REFERREED JOURNALS

Dark Matter Capture in the first star: a Power source and a limit on Stellar Mass. Freese, K., Spolyar, D., Aguirre, A. *Journal for Cosmology and Astroparticle Physics*, submitted; arXiv: 0802.172 (2008).

Towards observable signatures of other bubble universes. II: Exact solutions for thin-wall bubble collisions. Aguirre, A. Johnson, M. *Physical Review D* 76, 77, 123536 (2008).

Metallicity of the intergalactic medium using pixel statistics. 4. Oxygen. Aguirre, A., Dow-Hygelund, C., Schaye, J., Theuns, T., *Astrophysical Journal*, in press; arXiv:0712.1239 (2008).

Towards observable signatures of other bubble universes. Aguirre, A. Johnson, M., Shomer, A. *Physical Review D* 76, 063509 (2007).

The Missing Metal Problem. III. How Many Metals Should Be Expelled From Galaxies? Bouche, N., Lehnert, M., Aguirre, A., Peroux, C., Bergeron, J. *Mon.Not.Roy.Astron.Soc.* 378, 525 (2007).

Measures on transitions for cosmology in the landscape. Aguirre, A., Gratton, S., Johnson, M. *Physical Review Letters* 98, 131301 (2007).

Hurdles Facing Bubble-Counting In Eternal Inflation. Aguirre, A., Gratton, S., Johnson, M. *Physical Review D* 75, 123501 (2006).

Regulating Eternal Inflation. II. The Great Divide. Aguirre, A., Banks, T., Johnson, M. *Journal of High-Energy Physics* 0608, 065 (2006).

Two Tunnels To Inflation. Aguirre, A., Johnson, M.C. *Physical Review D* 73, 123529 (2006).

Dimensionless Constants, Cosmology And Other Dark Matters. Tegmark, M., Aguirre, A., Rees, M., Wilczek, F. *Physical Review D* 73, 023505 (2005).

Dynamics And Instability Of False Vacuum Bubbles. Aguirre, A., Johnson, M.C. *Physical Review D* 72, 103525 (2005).

The Spatial Distribution Of Metals In The Intergalactic Medium. Pieri, M. M., Schaye, J., Aguirre, A. *Astrophysical Journal*, 638, pp. 45 - 51 (2005).

Confronting Cosmological Simulations With Observations Of The Intergalactic Medium. Aguirre, A., Schaye, J., Hernquist, L., Kay, S., Springel, V., Theuns, T. *Astrophysical Journal*. 620, pp. L13 - 8 (2005).

Multiple Universes, Cosmic Coincidences, And Other Dark Matters. Aguirre, A., Tegmark, M. *JCAP*, 2005 - 1, p. 3 (2005).

Metallicity of the Intergalactic Medium Using Pixel Statistics. III. Silicon. Aguirre, A., Schaye, J., Kim, T., Theuns, T., Rauch, M. Sargent, W. L.W., *Astrophysical Journal* 602, pp. 38 - 50 (2004).

Metallicity of the Intergalactic Medium Using Pixel Statistics. II. The Distribution of Metals as Traced by C IV. Schaye, J., Aguirre, A., Kim, T., Theuns, T., Rauch, M., Sargent, W.L.W. *Astrophysical Journal* 596, pp. 768 - 796 (2003).

Inflation Without A Beginning: A Null Boundary Proposal, Aguirre, A., Gratton, S., *Physical Review D* 67, 083515, pp. 1 - 16 (2003).

Metallicity of the Intergalactic Medium Using Pixel Statistics: I. Method, Aguirre, A., Schaye, J., Theuns, T., *Astrophysical Journal*, 576, p. 1 (2002).

Steady-State Eternal Inflation, Aguirre, A., Gratton, S., *Physical Review D* 65, 083507 (2002).

Cold Big-Bang Cosmology as a Counter-example to Several Anthropic Arguments, Aguirre, A., *Physical Review D* 64, 083508 (2001).

Problems for MOND in Clusters and the Ly- α Forest, Aguirre, A., Schaye, J., Quataert, E., *Astrophysical Journal*, 561, p. 550 (2001).

Astrophysical Constraints on Modifying Gravity at Large Distances, Aguirre, A., Burgess, C. P., Friedland, A., Nolte, D., Classical and Quantum Gravity, *Class. Quantum Grav.*, 18, pp. R223 - R232 (2001).

Metal Enrichment of the Intergalactic Medium in Cosmological Simulations, Aguirre, A., Hernquist, L., Schaye, J., Katz, N., Weinberg, D. H., Gardner, J., *Astrophysical Journal*, 561, p. 521 (2001).

Enrichment of the Intergalactic Medium by Radiation Pressure-Driven Dust Efflux, Aguirre, A., Hernquist, L., Katz, N., Gardner, J., and Weinberg, D., *Astrophysical Journal Letters*, 556, p. L11 (2001).

Metal Enrichment of the Intergalactic Medium at $z = 3$ by Galactic Winds, Aguirre, A., Schaye, J., Hernquist, L., Weinberg, D., Katz, N., Gardner, J., *Astrophysical Journal*, 560, p. 599 (2001).

Gamma-Ray Burst Afterglows as Probes of Galactic and Intergalactic Dust, Perna, R., Aguirre, A., *Astrophysical Journal*, 543, p. 56 (2000).

The Cosmic Background Radiation in a Cold Big-Bang, Aguirre, A., *Astrophysical Journal*, 533, p. 1 - 18 (2000).

On the Superradiance of Spin-1 Waves in an Equatorial Wedge around a Kerr Hole, Aguirre, A., *Astrophysical Journal Letters*, 529, p. L9 (2000).

Cosmological Constant or Intergalactic Dust? Constraints from the Cosmic Far Infrared Background, Aguirre, A., Haiman, Z., *Astrophysical Journal*, 532, p. 28 (2000).

Intergalactic Dust and Observations of Type Ia Supernovae, Aguirre, A., *Astrophysical Journal*, 525, p. 583 (1999).

Cold Big-Bang Nucleogenesis, Aguirre, A., *Astrophysical Journal*, 521, pp. 17 - 29 (1999).

Dust Vs. Cosmic Acceleration, Aguirre, A., *Astrophysical Journal Letters*, 512, L19 (1999).

Accretion Of Hot Dark Matter Onto Slowly Moving Cosmic Strings, Aguirre, A., Brandenberger, R., *International Journal of Modern Physics D*, 4, p. 711 (1995).

Importance Of Nuclear Effects In The Dissociation Of ${}^6\text{He}$ And ${}^6\text{Li}$ At $E/A=85$ Mev, Balamuth, D., et al., *Physical Review Letters*, 72, p. 2355 (1994).

CONTRIBUTIONS & PAPERS DELIVERED AT SCHOLARLY CONFERENCES_____

2008 Dark Stars: Dark Matter in the First Stars leads to a New Phase of Stellar Evolution. Freese, K., Spolyar, D., Aguirre, A., Bodenheimer, P., Gondolo, P., Sellwood, J.A., Yoshida, N. Conference Proceeding for IAU Symposium 255: Low-Metallicity Star Formation: From the First Stars to Dwarf Galaxies; arXiv:0808.0472

- 2006 How Did the IGM Become Enriched? Aguirre, A., Schaye, J. Proceedings of CRAL Conference Series 1: Chemodynamics: From First Stars to Local Galaxies, Lyon, France, 10-14 Jul 2006; astro-ph/0611637
- 2005 Abundances In The High-Redshift Intergalactic Medium. Schaye, J., Aguirre, A. Submitted to IAU Symposium; astro-ph/0509113.
- Observational Tests Of Intergalactic Enrichment Models. Aguirre, A., Schaye, J. Submitted to IAU Symposium; astro-ph/0504427.
- 2004 The Spatial Distribution of CIV in the Intergalactic Medium, Pieri, M., Schaye, J., Haehnelt, M., Aguirre, A. 22nd Texas Symposium on Relativistic Astrophysics, Stanford University, Stanford, CA, December 13 - 17
- Dark Matter in Cosmology, Aguirre, A., in *Dark Matter in the Universe: Jerusalem Winter School for Theoretical Physics*, by Jerusalem Winter School for Theoretical Physics 1986-87 Jerusalem, Piran, T., Weinberg, S., Bahcall, J., pp. 1 - 17
- 2003 Alternatives to Dark Matter, IAU Symposium 220, Sydney, Australia, July 22 - 25
- Recovering Intergalactic Metallicity Using Pixel Optical Depths, Aguirre, A., Schaye, J., Theuns, T., ASSL Vol. 281: *The IGM/Galaxy Connection*. The Distribution of Baryons at $z = 0$, p. 243.
- 2002 Enrichment of the High-Redshift IGM by Galactic Winds, ASP Conf. Ser. 253: Chemical Enrichment of Intracluster and Intergalactic Medium, pp. 381 - 393.
- 2001 Enrichment of the High-Redshift IGM by Galactic Winds, Aguirre, A., Schaye, J., Hernquist, L., Weinberg, D., Katz, N., Gardner, J., Chemical Enrichment of Intracluster and Intergalactic Medium, Vulcano, Italy, ASP Conference Series, May 14 - 18
- 2000 Intergalactic Dust and Observations of Type Ia Supernovae, Aguirre, A., Energy Densities in the Universe, XVth Rencontres de Moriond, Les Arcs, France, Viet Nam: Thê' Giói publishers, ed. Reza Ansari, Yannick Giraud-Iteraud, Jean Trân Thanh Vân. January 22 - 29.

POPULAR ARTICLES & BOOK CONTRIBUTIONS

Eternal Inflation, past and future. Aguirre, A. Contribution to R. Vaas (ed.): Beyond the Big Bang. Springer 2008; arXiv:0712.0571

Where Did It All Come From? Aguirre, A., *Sky & Telescope* (Scheduled for Publication November 2006)

On Making Predictions in a Multiverse: Conundrums, Dangers, and Coincidences. Aguirre, A. Invited article for the book *Universe or Multiverse*, in press by Cambridge University Press (2006)

Not a Bad Idea, Aguirre, A., *Scientific American*, p. 36 (August 2002)

INVITED TALKS & WORKSHOPS

- 2008 Scientific Colloquium, Goddard Space Flight Center, Goddard, MD (May)
Harvard-CfA-Tufts Cosmology Seminar, Tufts University, Medford, MA (May)
Invited talk, CIFAR/LindeFest, SLAC, Palo Alto, CA (March)
- 2007 Colloquium, Brown University, Providence RI (March)
Colloquium, UNC Chapel Hill, Chapel Hill, NC (February)
SLAC Theory Seminar, SLAC, Palo Alto, CA (March)
Berkeley Theory Seminar, UC Berkeley, Berkeley CA (March)
- 2006 Colloquium on Convergence, Stanford University, Palo Alto, CA (August)
Infinity Workshop, San Marino (August)
Invited Review, IAU Symposium: Cosmochemistry, Lyon, France (July)
Harvard-CfA-Tufts Cosmology Seminar, Tufts University, Medford, MA (March)
Theory Seminar, UC Berkeley, Berkeley, CA (March)
Colloquium, OCIW, Pasadena, CA (January)
- 2005 Finding a Home in the Multiverse, Multiversal Journeys, Los Angeles, CA (December)
Finding a Home in the Multiverse, Multiversal Journeys, Berkeley, CA (November)
Review Talk, Nearly Normal Galaxies Conference, Santa Cruz, CA (July)
Colloquium, Perimeter Institute, Waterloo, Ontario, Canada (February)
- 2004 Seminar, Lawrence Livermore National Lab, Livermore, CA (October)
Conference On The Enrichment Of The Early Universe, Santa Fe, NM (August)
Colloquium, University of Arizona, Tucson, AZ (August)
KICP Cosmology Seminar, Chicago, IL (May)
SLAC Theory Seminar, Palo Alto, CA (March)
- 2003 Seminar, Lawrence Berkeley National Lab, Berkeley, CA (December)
Invited review, IAU Dark Matter Symposium, Sydney, Australia (July)
Davis Conference on Cosmic Inflation, Davis, CA (March)

- Amateur Astronomers Association of Princeton, Princeton, NJ (January)
- 2002 Theoretical Astrophysics Colloquium, Fermilab, Batavia, IL (December)
 Physics Colloquium, UC Santa Cruz (November)
 Astronomy Colloquium, University of Arizona, Tucson, AZ (November)
 Astronomy/Physics Colloquium, University of Victoria, Victoria, BC (June)
 Physics Colloquium, UC Davis, Davis, CA (May)
 Theory Seminar, Harvard University, Cambridge, MA (March)
- 2001 Seminar, Institute for Advanced Study, Princeton, NJ (December)
 Invited Talk, Templeton Conference, Cambridge, UK (July)
 Colloquium, Goddard Space Flight Center, Greenbelt, MD (March)
- 2000 Harvard-CfA-Tufts Cosmology Seminar, Tufts University, Medford, MA (December)
- 1999 Theory Seminar, Harvard University, Cambridge, MA (December)
- 1998 Invited Talk, Cosmology Conference, Bad Honnef, Germany (July)

CONFERENCE COMMITTEES

- 2007 Organizer, Foundational Questions in Physics and Cosmology Conference, Reykjavik, Iceland
- 2006 Organizer, COSMO 06, *University of California, Davis*
- 2005 Local Organizing Committee, Nearly Normal Galaxies Conference, *University of California, Santa Cruz*
- 2002 Judging Panel, Young Researchers Competition
 Wheeler Symposium, Princeton, New Jersey
- 2000 – 2003 Organizer, IAS Joint Physics-Astrophysics/Early Universe Seminar
Institute for Advanced Study