

# Evalyn Gates

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## Education

1990	Ph.D. in Theoretical High Energy Physics	Case Western Reserve University
1981	B.S. in Biomedical Engineering	Case Western Reserve University
1980	B.S. in Physics	The College of William and Mary

## Professional History

2010-present	Executive Director and CEO Cleveland Museum of Natural History Cleveland, OH
2008-2010	Assistant Director Kavli Institute for Cosmological Physics, The University of Chicago Chicago, IL
1999-2010	Senior Research Associate Dept. of Astronomy & Astrophysics, The University of Chicago Chicago, IL
2001-2003	Vice President for Science & Education Adler Planetarium & Astronomy Museum Chicago, IL
1996-2001	Director of Astronomy Adler Planetarium & Astronomy Museum Chicago, IL
1996-1999	Research Scientist Dept. of Astronomy & Astrophysics, The University of Chicago Chicago, IL
1995-1996	Guest Scientist Theoretical Astrophysics Group Fermi National Accelerator Lab
1992-1996	Research Associate Enrico Fermi Institute, University of Chicago Chicago, IL
1990-1992	Associate Research Scientist Yale University New Haven, CT

- 1984-1990      Research Assistant/Teaching Assistant  
Case Western Reserve University  
Cleveland, OH
- 1981-1983      Research Engineer  
Orthopaedic Research Lab, Massachusetts General Hospital  
Boston, MA

### Additional Activities

- SEGUE Collaboration Member  
Sloan Digital Sky Survey (SDSS-II)
- Women in Science Project  
Organizing Committee  
Collaboration between the Center for Gender Studies, a committee of women faculty from the Biological, Physical, and Social Sciences Divisions, and the Provost's office.
- Women in the Physical Sciences Committee  
University of Chicago
- Chair  
Why So Few Women in Science?: Defining the Problem and Taking Action  
Special symposium held at the University of Chicago, May 2005
- Co-Chair  
COSMO-02 International Workshop on Particle Physics and the Early Universe  
September 2002
- Co-Chair  
Pritzker Symposium on Inflationary Cosmology  
January 1999
- High Energy Physics Advisory Panel, Quantum Universe Committee – drafted report to outline the key questions facing particle physics in the coming century and summarize current and future efforts to address these questions (2003-2004).
- Authored Opinion article "A Scientific Point of View," *Physics Today*, April 2006. See also response to letters *Physics Today*, December 2006.
- Authored Op-ed article in response to remarks of Harvard President Larry Summers, Chicago Tribune, January 25, 2005.
- Organized a workshop session on Education and Outreach at TAUP 2003, an international conference on Topics in Astroparticle and Underground Physics.
- Board member of the Teachers Academy for Mathematics and Science, a Chicago-based non-profit organization dedicated to improving math and science teaching in lower and middle schools (2000 - 2003).
- Faculty member of two Chautauqua Short Courses on Cosmology for College Teachers hosted by the University of Chicago; presented lectures on Dark Matter (1999, 2001).

- Project Director for three major exhibit galleries developed at Adler. Responsible for all scientific content and text; worked with design firms to create engaging, hands-on exhibits.

*Gateway to the Universe* highlights basic concepts of light, gravity, motion and energy.

*Stars and Our Milky Way Galaxy* explores stellar evolution and Galactic structure; funded in part by a grant from the NSF.

*The Pritzker Cosmology Gallery: From the Night Sky to the Big Bang* presents our model of the Universe from 1000 years ago to the present, and the key ideas or observations that radically changed this model at various points in history.

## Books

- *Einstein's Telescope: The Hunt for Dark Matter and Dark Energy in the Universe*, W. W. Norton (2009).

## Scientific Publications

1. Mukremin Kilic et al "A Detailed Model Atmosphere Analysis of Cool White Dwarfs in the Sloan Digital Sky Survey" to appear in *Astrophys. J. Supp.* (2010).
2. Kevork N. Abazajian et al., "The Seventh Data Release of the Sloan Digital Sky Survey", *Astrophys. J. Supp.* **182**, 543 (2009).
3. Brian Yanny et al., "SEGUE: A Spectroscopic Survey of 250,000 Stars with  $g = 14-20$ ", *Astron. J.* **137**, 4377 (2009).
4. Patrick B. Hall, Piotr M. Kowalski, Hugh C. Harris, Akshay Awal, S. K. Leggett, Mukremin Kilic, Scott F. Anderson, and Evalyn Gates, "A Nearby Old Halo White Dwarf Candidate from the Sloan Digital Sky Survey", *Astron. J.* **136**, 76 (2008).
5. Hugh Harris, Evalyn Gates, Geza Gyuk, Mark Subbarao, Scott Anderson, Patrick B. Hall, Jeffrey A. Munn, James Liebert, Gillian R. Knapp, D. Bizyaev, K. Pan, Donald P. Schneider, and J. Allyn Smith, "Additional Ultracool White Dwarfs Found in the Sloan Digital Sky Survey", *Astrophys. J.* **679**, 697 (2008).
6. Jennifer K. Adelman-McCarthy et al, "The Sixth Data Release of the Sloan Digital Sky Survey", *Astrophys. J. Supp.* **175**, 297A (2008).
7. Evalyn Gates, Geza Gyuk, Hugh C. Harris, Mark Subbarao, Scott Anderson, S.J. Kleinman, James Liebert, Howard Brewington, J. Brinkmann, Michael Harvanek, Jurek Krzesinski, Don Q. Lamb, Dan Long, Eric H. Neilsen, Jr., Peter R. Newman, Atsuko Nitta, and Stephanie Snedden, "Discovery of New Ultracool White Dwarfs in the Sloan Digital Sky Survey", *Astrophys. J. Lett.* **612**, L129 (2004).
8. Evalyn Gates and Geza Gyuk, "A New (Old) Component of the Galaxy as the Origin of the Observed LMC Microlensing Events," *Astrophys. J.* **547**, 786 (2001).

9. Evalyn Gates, "A New (Old) Component of the Milky Way," in *Proceedings of the XXXVth Recontres de Moriond: Cosmological Physics with Gravitational Lensing*, J. Tran Thanh Van, Y. Mellier and M. Moniez, eds. (2000).
10. Evalyn Gates and Geza Gyuk, "A New Component of the Galaxy as the Origin of the LMC Microlensing Events," in *Microlensing 2000: A New Era of Microlensing Astrophysics*, ASP Conf. Series, J.W. Menzies and P.D. Sackett, eds (2000).
11. Geza Gyuk and Evalyn Gates, "LMC Microlensing and Very Thick Disks," *Mon. Not. R. Astron. Soc.* **304**, 281 (1999).
12. W. Evans, E. Gates, and G. Gyuk, "Brown Dwarfs, White Knights and Demons," *Astrophys. J. Lett.* **502**, L29 (1998).
13. Evalyn Gates, Geza Gyuk, Gil Holder and Michael S. Turner, "No Need for MACHOs in the Halo," *Astrophys. J. Lett.* **500**, L145 (1998).
14. Geza Gyuk and Evalyn Gates, "Rotating Halos and the Microlensing MACHO Mass Estimate," *Mon. Not. R. Astron. Soc.* **294**, 682 (1998).
15. Evalyn Gates, "Microlensing and the Composition of the Galactic Halo", Proceedings of the 18th Texas Symposium on Relativistic Astrophysics, Eds. A. Olinato, J. Frieman, and D. Schramm (World Scientific, Singapore) (1997).
16. Evalyn Gates, Marc Kamionkowski, and Michael S. Turner, "Comment on 'The Dispersion Velocity of Galactic Dark Matter Particles' " *Phys. Rev. Lett.* **78**, 2261 (1997)
17. Evalyn Gates, Geza Gyuk and Michael S. Turner, "Gravitational Microlensing and Halo Cold Dark Matter," Proceedings of *Aspects of Dark Matter in Astro- and Particle Physics*, Heidelberg, Germany (1996)
18. Scott Dodelson, Evalyn Gates and Michael S. Turner, "Cold Dark Matter Models," *Science* **274**, 69 (1996).
19. Scott Dodelson, Evalyn Gates and Albert Stebbins, "Cold + Hot Dark Matter and the Cosmic Microwave Background," *Astrophys. J.* **467**, 10(1996).
20. Evalyn Gates, Geza Gyuk and Michael S. Turner, "Gravitational Microlensing and the Galactic Halo," *Phys. Rev. D* **53**, 4138 (1996).
21. G. Gyuk, E. Gates, and M.S. Turner, "Microlensing Towards the Galactic Bulge and Galactic Dark Matter," *Nucl. Phys. B (Proc. Suppl.)* **51b**, 146 (1996).
22. Evalyn Gates, Geza Gyuk and Michael S. Turner, "The Local Halo Density," *Astrophys. J. Lett.* **449**, L123 (1995).
23. Evalyn Gates, Geza Gyuk and Michael S. Turner, "Microlensing and Halo Cold Dark Matter," *Phys. Rev. Lett.* **74**, 3724 (1995).
24. Evalyn Gates, Lawrence Krauss, and Martin White, "Treating Solar Model Uncertainties: A Consistent Statistical Analysis of Solar Neutrino Models and Data", *Phys. Rev. D* **51**, 2631 (1995).

25. Evalyn Gates and Michael S. Turner, "Halo Cold Dark Matter and Microlensing," *Phys. Rev. Lett.* **72**, 2520 (1994).
26. R. R. Caldwell and E. Gates, "Constraints on Cosmic String Scenarios due to Black Holes formed from Collapsed Cosmic String Loops," *Phys. Rev. D* **48**, 2581 (1993).
27. R. S. Chivukula, E. Gates, E. H. Simmons and J. Terning, "Walking Technicolor and the  $Zb\bar{b}$  Vertex," *Phys. Lett. B* **311**, 157 (1993).
28. Lawrence Krauss, Evalyn Gates, and Martin White, "Solar Neutrino Data, Solar Model Uncertainties and Neutrino Oscillations," *Phys. Lett. B* **299**, 94 (1993).
29. Martin White, Lawrence Krauss, and Evalyn Gates, "A New Look at the Solar Neutrino Problem", *Phys. Rev. Lett.* **70**, 375 (1993).
30. Evalyn Gates, Lawrence Krauss, and John Terning, "Monopole Non-Annihilation at the Electroweak Transition," *Phys. Lett. B* **284**, 309 (1992).
31. Evalyn Gates, Lawrence Krauss, and Martin White, "Solar Neutrino Data and Its Implications," *Phys. Rev. D* **46**, 1263 (1992).
32. A. Chodos, V. A. Kostelecký, R. Potting, and E. Gates, "Null Experiments for Neutrinos Masses," *Mod. Phys. Lett. A* **7**, 467 (1991).
33. Evalyn Gates and John Terning, "Negative Contributions to the radiative-correction parameter  $S$  from Majorana Particles," *Phys. Rev. Lett.* **67**, 1840 (1991).
34. Evalyn Gates, Robertus Potting, Cyrus Taylor, and Boris Velikson, "Quantizing Compact Phase Spaces: Irreducible Representations from Constrained Dynamics," *Phys. Rev. Lett.* **63**, 2617 (1989).
35. Evalyn I. Gates and Kenneth L. Kowalski, "Majorana Feynman Rules," *Phys. Rev. D* **37**, 938 (1988).
36. D. Delaney, E. Gates, and O. Törnkvist, "Xeros," *Phys. Lett. B* **186**, 91 (1987).
37. Evalyn I. Gates, Dennis R. Carter, and William H. Harris, "Comparative Fatigue Behavior of Different Bone Cements," *Clin. Ortho.* **189**, 294 (1984).
38. Dennis W. Burke and Evalyn I. Gates, "Centrifugation as a Method of Improving Tensile and Fatigue Properties of Acrylic Bone Cement," *J. Bone Jt. Surg.* **66A**, 1265 (1984).
39. D.R. Carter, E.E. Shimoaka, W.H. Harris, E.I. Gates, W.E. Caler and J.C. McCarthy, "Changes in Long Bone Structural Properties during the First Eight Weeks of Plate Implantation," *J. Ortho Res.* **2**, 80 (1984).
40. Evalyn I. Gates, Dennis R. Carter, and William H. Harris, "Fatigue of Acrylic Bone Cement - The Influence of Strain Range and Mean Strain," *J. Biomech.* **16**, 284 (1983).
41. Evalyn I. Gates, Dennis R. Carter, and William H. Harris, "Tensile Fatigue Failure of Acrylic Bone Cement," *J. Biomech. Eng.* **105**, 393 (1983).
42. Dennis R. Carter, Evalyn I. Gates, and William H. Harris, "Strain Controlled Fatigue of Acrylic Bone Cement," *J. Biomed. Mater. Res.* **16**, 647 (1982).