

# Evalyn Gates

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## Education & Fellowships

The College of William and Mary	B.S. Physics
Case Western Reserve University	B.S. Biomedical Engineering
Case Western Reserve University	Ph.D. Theoretical High Energy Physics
Yale University	Postdoctoral Fellowship
The University of Chicago	Postdoctoral Fellowship

## Professional Experience

EXECUTIVE DIRECTOR & CEO

2010-2017

### **The Cleveland Museum of Natural History**

- Led board, staff and external stakeholders in creating bold & dynamic vision for the Museum and its role in the community.
  - Developed and executed two 5-year strategic plans (2011; 2016) — roadmaps for achieving vision
  - Finalized architectural and exhibit designs to transform museum, integrating research, education and public experience — 130,000 sf expansion includes 11 major exhibit galleries, 6 flexible classrooms, state-of-the-art research labs, collections facilities, Grand Lobby & Courtyard
- Raised \$77M in first 5 years of \$150M capital campaign to completely transform museum — first major capital campaign in Museum's history
- Completed first phase of construction (2016):
  - Award-winning Perkins Wildlife Center & Woods Garden — dubbed “Best 2 Acres in CLE” by *Cleveland Plain Dealer*
  - Sears Garden, showcasing Mammoth and Mastodon sculptures by Viktor Schreckengost
  - Energy-efficient parking garage
- Achieved record increases in attendance (30%), membership (23%), and revenue (22%) after successful first year of operation of new spaces
- Developed partnership with Cleveland Metropolitan School District, *Inspire: Reach Every Child*
  - Incorporates real science into curriculum for every 2nd grade student; models effective science education for teachers and engages families in place-based learning
  - 99% of 2nd grade classes in years 1-3 of the program; 100% in years 4-5
  - Full day of immersive, inquiry-based, experiential science education on-site; pre/post visit activities
  - STEM Cultural Collaboration created to facilitate expansion to institutions across region
- Elevated awareness of Museum and its mission through strategic media campaign, personal speaking engagements, new partnerships, and innovative programs that engaged new, more diverse audiences:
  - [PNC SmartHome](#) - 2,500 sf custom home certified as Ohio's first Passive House
  - Family pass program for city residents in partnership with Cleveland Public Library
  - Think & Drink evening program for young professionals, attracting 500-1,000 each month
  - Explorer Lectures: increased attendance (300-600/lecture) and reached broader demographic
  - Science Communications Officer: hired experienced award-winning science journalist to increase public awareness of local science & research via articles, blogs and *Sauropodcasts*.
  - Partnership with Microsoft and CWRU to pioneer unique museum augmented reality experience
- Strengthened focus on and support for world-class research
  - Raised expected level of excellence in research and public engagement; created 2 new positions — *Curator of Evolutionary Medicine & Human Health*; *Curator of Paleobotany & Paleoecology*
  - Expanded collections management staff; increased numbers of graduate students and postdocs; increased funding support for fieldwork; constructed on-site DNA lab
- Implemented extensive restructuring and best practices across Museum:
  - Grew museum operations by 50% (to \$15M in 2017) while continuing to balance operating budget each year. Increased gifts to annual operating budget during major capital campaign.

ADJUNCT PROFESSOR <b>Department of Physics, CWRU</b>	2010-2021
ASSISTANT DIRECTOR <b>Kavli Institute for Cosmological Physics</b> , The University of Chicago <ul style="list-style-type: none"> <li>• Responsible for overall management of KICP</li> <li>• Directed Postdoctoral Fellowship program</li> </ul>	2008-2010
RESEARCH FACULTY <b>Dept. of Astronomy &amp; Astrophysics</b> , The University of Chicago <ul style="list-style-type: none"> <li>• Conducted independent research program in cosmology and astrophysics</li> </ul>	1996-2010
VICE PRESIDENT FOR SCIENCE & EDUCATION	2001-2003
DIRECTOR OF ASTRONOMY <b>Adler Planetarium &amp; Astronomy Museum</b> , Chicago, IL <ul style="list-style-type: none"> <li>• Created one of the first research departments in a major planetarium: expanded to 9 PhD research scientists; facilitated partnerships with local universities for joint academic positions</li> <li>• Secured first major NSF grant (\$1.5M) awarded to Adler; secured \$1M donation for cosmology gallery</li> <li>• Oversaw planetarium show production and development of innovative education programs</li> <li>• Led content development for new major galleries</li> </ul>	1996-2001
GUEST SCIENTIST <b>Theoretical Astrophysics Group</b> , Fermi National Accelerator Lab	1995-1996
RESEARCH ENGINEER <b>Harris Orthopaedics Research Lab</b> Massachusetts General Hospital, Boston, MA	1981-1983

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### External Boards & Committees

- Legacy Survey of Space and Time Corp, Development Committee (2020 - present)
- Aspen Center for Physics, Trustee 2022 - present; Co-chair Diversity & Inclusion Committee 2020-2021
- CWRU Physics Strategic Advisory Group; Spokesperson Diversity, Equity & Inclusion
- American Physical Society Panel on Public Affairs (2014-2017)
  - Chair, Subcommittee on Physics and the Public
- Executive Committee of the University Circle Inc. (UCI) Board (2010 - 2017)
  - Co-Chair - UCI Transportation & Infrastructure Task Force
  - UCI Strategic Planning Committee
- Cuyahoga Arts and Culture Campaign Steering Committee (2015 levy renewal)
- Head Council for Laurel School (2016 - 2017)
- Greater Cleveland Partnership Government Affairs Council
- Women in the Physical Sciences Committee, University of Chicago
- Chair - Why So Few Women in Science?: Defining the Problem and Taking Action, symposium (2005)
- High Energy Physics Advisory Panel, co-author of Quantum Universe report (2004)
- Board member - Teachers Academy for Mathematics and Science, Chicago (2000-2003)
- Co-Chair COSMO-02 International Workshop on Particle Physics and the Early Universe (2000)
- Co-Chair Pritzker Symposium of Inflationary Cosmology (1999)

### Awards

- YWCA of Greater Cleveland Women of Achievement (2017)
- *Smart Business Magazine* Smart 50 (2016)
- Crain's Cleveland Women of Note (2015)
- Boyd Fellow, National Arts Strategies Chief Executive Program (2011-2013)

## Books & Publications

- *Einstein's Telescope: The Hunt for Dark Matter and Dark Energy in the Universe*, W.W. Norton (2009).
- More than 40 research papers published in peer-reviewed science journals
- Op-ed articles on Women in Science for Chicago Tribune (2005); Physics Today (2006)
- "Passive House Design: Building for the Future", (2022)

## PUBLICATIONS

1. Mukremin Kilic et al "A Detailed Model Atmosphere Analysis of Cool White Dwarfs in the Sloan Digital Sky Survey" *Astrophys. J. Supp.* **190**, 77(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 Harcanek, 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.
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 18<sup>th</sup> Texas Symposium on Relativistic Astrophysics, Eds. A. Olinto, 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**, 123 (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  $Zbb$  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. Lett.* **70**, 375 (1993).
30. Evalyn Gates, Lawrence Krauss, and John Terning, "Monopole Non-Annihilation at Electroweak Transition," *Phys. Lett.* **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 (1998).
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 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).