

## **CURRICULUM VITAE**

Howard E. Haber  
Distinguished Professor of Physics  
Department of Physics  
University of California, Santa Cruz

### **EMPLOYMENT**

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|--------------|--|
| 2020-present | Research Professor of Physics, Department of Physics, UC Santa Cruz                      |
| 1990–2020    | Professor of Physics, Department of Physics, UC Santa Cruz                               |
| 1989–1990    | Associate Professor of Physics, Department of Physics, UC Santa Cruz                     |
| 1988–1989    | Assistant Professor of Physics, Department of Physics, UC Santa Cruz                     |
| 1984–1988    | Adjunct Assistant Professor of Physics, Department of Physics, UC Santa Cruz             |
| 1982–1984    | Assistant Research Physicist/Visiting Assistant Professor, UC Santa Cruz                 |
| 1980–1982    | Postdoctoral Research Associate, University of Pennsylvania                              |
| 1978–1980    | Postdoctoral Research Associate, Theoretical Physics Group, Lawrence Berkeley Laboratory |
| 1975–1978    | Research Assistant, University of Michigan   |
| 1973–1978    | Teaching Assistant, University of Michigan   |

### **EDUCATION**

|                |   |
|----------------|---|
| Ph.D., Physics | University of Michigan, 1978                |
| S.M., Physics  | Massachusetts Institute of Technology, 1973 |
| S.B., Physics  | Massachusetts Institute of Technology, 1973 |
| S.B., Math     | Massachusetts Institute of Technology, 1973 |

### **ACADEMIC WEB PAGE OF HOWARD E. HABER**

<https://scipp-legacy.pbsci.ucsc.edu/~haber/>

### **HONORS AND AWARDS**

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| 2023 | American Physical Society Outstanding Referee  |
| 2018 | Simons GGI Visiting Scientist Fellowship, The Galileo Galilei Institute for Theoretical Physics, Arcetri, Florence, Italy                      |
| 2017 | Co-recipient of the American Physical Society J.J. Sakurai Prize for Theoretical Particle Physics (\$10,000, shared among the four recipients) |
| 2015 | Received the honorary designation of Distinguished Professor of Physics  |

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| 2013      | Selected (with Abe Seiden) to deliver the UCSC Faculty Research Lecture in February, 2014                    |
| 2013      | Finalist for an Excellence in Teaching Award, chosen by the Committee on Teaching of the UCSC Faculty Senate |
| 2009      | Alexander von Humboldt Research Award, €60,000   |
| 1998      | Frontier Fellow, Fermilab  |
| 1995      | Scientific Associate, CERN   |
| 1993      | elected Fellow of the American Physical Society  |
| 1985–1988 | Department of Energy Outstanding Junior Investigator   |

## PROFESSIONAL ORGANIZATIONS

American Physical Society  
 American Association of Physics Teachers  
 Sigma Xi, University of California, Santa Cruz Chapter  
 Mathematical Association of America

## PROFESSIONAL SERVICE

|              |  |
|--------------|--|
| 2015–present | Member of the International Advisory Committee of the Higgs Hunting Conference, Orsay, France  |
| 2013–present | Member of the International Advisory Committee of the International Workshop on Higgs as a Probe of New Physics (HPNP)                   |
| 2013–present | Honorary Member, Aspen Center for Physics  |
| 2011–present | Member of the Program Committee of the Scalars Conference, Warsaw, Poland  |
| 2009–present | Member, International Advisory Committee, Workshop on Multi-Higgs Models, Lisbon, Portugal   |
| 2007–present | Member of the Particle Data Group  |
| 1997–2025    | Member of the Board of Editors, <i>European Physical Journal C</i>   |
| 2022–2023    | Member of the Committee of Visitors (COV) for the Division of Physics at the National Science Foundation                                 |
| 2022         | Member of the Aspen Center for Physics Admissions Committee  |
| 2021         | Mail-in reviewer for research grant proposals to the FY2021 Department of Energy Comparative Review of the University HEP Theory Program |
| 2019         | Member, National Science Foundation High Energy Physics Theory and Cosmology Panel   |
| 2001–2019    | Member of the International Advisory Board of the International Symposium on Radiative Corrections (RADCOR)                              |
| 2018         | Mail-in reviewer for theoretical HEP proposals to the FY2018 DOE Office of Science Early Career Research Program                         |
| 2018         | Member of the Aspen Center for Physics Presidential Search Committee   |
| 2017         | Member of the American Physical Society J.J. Sakurai Prize Selection Committee   |

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| 2016–2017 | Member of the Division of Particles and Fields Mentoring Award Selection Committee  |
| 2016      | Chair of the Aspen Center for Physics Presidential Search Committee   |
| 2015–2018 | Member of the Advisory Committee to the Fermilab Distinguished Scholars Program (FDSP)  |
| 2015      | Member of the Advisory Committee to HEPAP to formulate a charge to the Subcommittee on Respective Roles and Responsibilities (RR&R) |
| 2015      | Member, Department of Energy FY16 University Theory Program Comparative Review Panel  |
| 2015      | Member, National Science Foundation High Energy Physics Theory and Cosmology Panel  |
| 2014      | Member, Department of Energy FY15 University Theory Program Comparative Review Panel  |
| 2014      | Member of the P5 Rollout Campaign Committee   |
| 2013–2018 | Member of the Dean’s Advisory Committee to evaluate the Laboratory for Nuclear Science at MIT                                       |
| 2013–2015 | Elected Secretary/Treasurer of the Division of Particles and Fields of the American Physical Society                                |
| 2013      | Member, Colloquium Committee, Aspen Center for Physics  |
| 2011–2012 | Member, Admissions Committee, Aspen Center for Physics  |
| 2011      | Member, Program Committee for the International Workshop on Future Linear Colliders (LCWS11)  |
| 2011      | Member, International Advisory Committee for the SUSY 2011 Conference   |
| 2010–2011 | Member, Executive Committee of the Trustees, Aspen Center for Physics   |
| 2010      | Member, Local Organizing Committee for the SUSY-10 Conference   |
| 2010      | Member, National Science Foundation High Energy Physics Theory and Cosmology Panel  |
| 2007      | Member, Program Committee, American Linear Collider Physics Group Workshop 2007 (ALCPG07)   |
| 2007      | Candidate for Vice-Chair of the Division of Particles and Fields  |
| 2005–2011 | Trustee, Aspen Center for Physics   |
| 2006      | Member, Department of Energy Panel to Review Outstanding Junior Investigator (OJI) grants in particle physics                       |
| 2006      | Chair of the American Physical Society J.J. Sakurai Prize Selection Committee   |
| 2005      | Vice-chair of the American Physical Society J.J. Sakurai Prize Selection Committee  |
| 2002–2004 | Member, Editorial Board of Physical Review D  |
| 2002–2004 | elected Member, Executive Committee of the Division of Particles and Fields of the American Physical Society                        |
| 2001–2002 | Member, International Scientific Advisory Committee for the SUSY-07 Conference  |
| 2001      | Member, NSF Panel to Review Theoretical Physics Grants  |

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| 1998–2001      | Corporate Secretary, Aspen Center for Physics   |
| 1996–2000      | Member, SLAC Experimental Program Advisory Committee  |
| 1996–1997      | Scientific Secretary, Aspen Center for Physics  |
| 1995–1996      | Assistant Scientific Secretary, Aspen Center for Physics  |
| 1994–1997      | Member, Board of Editors, <i>Zeitschrift für Physik C</i>   |
| 1993–2013      | General Member, Aspen Center for Physics  |
| 1992–2006      | Outside consultant to the Particle Data Group   |
| 1989–1992      | Divisional Associate Editor of <i>Physical Review Letters</i>   |
| December, 1989 | Member of a National Science Foundation Panel to select recipients of the Presidential Young Investigator Awards in Physics |

## REFeree

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| 2011–present | Peer-review Referee for the Israel Science Foundation grant proposals.  |
| 1985–present | Peer-review Referee for Department of Energy grant proposals.   |
| 1984–present | Peer-review Referee for National Science Foundation grant proposals.  |
| 1980–present | Peer-review referee for professional journals: <i>Physical Review Letters</i> , <i>Physical Review D</i> , <i>Physics Letters B</i> , <i>Nuclear Physics B</i> , <i>Physics Reports</i> , <i>International Journal of Modern Physics A</i> , <i>Modern Physics Letters A</i> , <i>Zeitschrift für Physik C</i> , <i>European Physical Journal C</i> , <i>JHEP</i> , <i>SciPost Physics</i> , <i>Proceedings of Science</i> , and <i>Europhysics Letters</i> . |

## PANELS AND WORKING GROUPS

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|-------------|--|
| 2017        | co-convener of the Higgs/EW/BSM session of the Americas Workshop on Linear Colliders 2017 (AWLC2017)                             |
| 2015–2016   | co-convener of the Higgs session of the KITP workshop, “Experimental Challenges for the LHC Run II”                              |
| 2014        | co-convener of the Higgs/Electroweak Symmetry Breaking Working Group, Americas Workshop on Linear Colliders (AWLC14)             |
| 2014        | founding member of the Precision SUSY Higgs Mass Calculation Initiative  |
| 2013        | co-convener of the Higgs/EWSB Working Group, International Conference on Future Linear Colliders (LCWS-13)                       |
| 2007        | co-convener of the Higgs Working Group for the Workshop on “The LHC early phase for the ILC”                                     |
| 2005–2006   | co-convener of the CP violation in 2HDM working group, Workshop on CP Studies and Non-Standard Higgs Physics (CPNSH)             |
| April, 2004 | co-convener of the Higgs and Electroweak Symmetry Breaking Working Group, International Conference on Linear Colliders (LCWS-04) |
| 2003–2004   | co-editor of the LHC/ILC Study Group   |
| 2000–2004   | co-convener of the Higgs Working Group, American Linear Collider Physics Group   |
| July, 2001  | co-convener of the Snowmass 2001 Working Group on Electroweak Symmetry Breaking  |

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| October, 1998    | co-convener of the “Is it really top? Is it only top?” Discussion Group, Top-Quark Physics for Tevatron Run II Thinkshop                                   |
| March–Dec., 1998 | co-convener of the Higgs Working Group, Tevatron Run II Workshop   |
| June–July, 1996  | co-convener of the Light Higgs Boson Working Group, Snowmass Workshop on New Directions for High Energy Physics  |
| 1995             | co-convener of the Higgs Boson Working Group, European Workshop on Future $e^+e^-$ Linear Colliders  |
| 1994–1995        | co-convener of the <i>Electroweak Symmetry Breaking and Beyond the Standard Model Working Group</i> , for the DPF Long Range Planning Study                |
| 1990–1991        | member of SLAC working group on the Next Linear Collider   |
| January, 1989    | co-leader of <i>Higgs Boson Working Group</i> at the Workshop on High Energy Physics Phenomenology, Tata Institute for Fundamental Research, Bombay, India |
| 1987–1988        | member of SLAC panel studying Opportunities and Requirements for Experimentation at a Very High-Energy $e^+e^-$ Collider                                   |
| July, 1987       | co-leader of <i>Non-minimal Higgs Boson Working Group</i> at the 1987 Berkeley Workshop on the SSC   |
| March–Aug., 1985 | leader of <i>Beyond the Standard Model Working Group</i> at the 1985 Oregon Workshop on Supercollider Physics  |
| June–July, 1984  | leader of <i>New W’s and Z’s Working Group</i> at the 1984 Snowmass Workshop on the SSC  |

## SELECTED LIST OF PUBLICATIONS

### Books

1. *From Spinors to Supersymmetry*, H.K. Dreiner, H.E. Haber, and S.P. Martin (Cambridge University Press, Cambridge, UK, 2023).
2. *The Higgs Hunter’s Guide*, J.F. Gunion, H.E. Haber, G.L. Kane, and S. Dawson, Frontiers in Physics Lecture Note Series #80, (Addison-Wesley Publishing Company, Redwood City, CA, 1990); paperback edition: (Westview Press, Boulder, CO, 2000).

### Peer-reviewed Articles in Professional Journals (2020–2025)

1. Extending the symmetries of the generalized CP-symmetric 2HDM scalar potential to the Yukawa sector, S. Carrolo, H.E. Haber, L. Lourenco, and J.P. Silva, *Phys. Rev. D* **112**, 035024 (2025).
2. RG-stable parameter relations of a scalar field theory in absence of a symmetry, H.E. Haber and P.M. Ferreira, *Eur. Phys. J.* **C85**, 541 (2025).
3. Correlating  $A \rightarrow \gamma\gamma$  with EDMs in the 2HDM in light of the diphoton excesses at 95 GeV and 152 GeV, S. Banik, G. Coloretti, A. Crivellin, and H.E. Haber, *Phys. Rev. D* **111**, 075021 (2025).
4. Explicit form for the most general Lorentz transformation revisited, H.E. Haber, *Symmetry* 2024, 16, 1155.

5. Supersymmetry, Part I (Theory), B.C. Allanach and H.E. Haber, in *Review of Particle Physics*, S. Navas *et al.* [Particle Data Group], *Physical Review D* **110**, 030001 (2024).
6. Classes of complete dark photon models constrained by Z-Physics, M.P. Bento, H.E. Haber and J.P. Silva, *Physics Letters B* **850**, 138501 (2024).
7. Higgs Boson Physics: The View Ahead, H.E. Haber, Letters in High Energy Physics, LHEP-451 (2023).
8. Tree-level Unitarity in  $SU(2)_L \times U(1)_Y \times U(1)_{Y'}$  Models, M.P. Bento, H.E. Haber and J.P. Silva, *JHEP* **2310**, 083 (2023).
9. Accommodating Hints of New Heavy Scalars in the Framework of the Flavor-Aligned Two-Higgs-Doublet Model, J.M. Connell, P.M.Ferreira and H.E. Haber, *Phys. Rev. D* **108**, 055031 (2023).
10. P-even, CP-violating Signals in Scalar-Mediated Processes, H.E. Haber, V. Keus and R. Santos, *Phys. Rev. D* **106**, 095038 (2022).
11. A natural mechanism for a SM-like Higgs boson in the 2HDM without decoupling, H.E. Haber, PoS (DISCRETE2020-2021) 010.
12. Exceptional regions of the 2HDM parameter space, H.E. Haber and J.P. Silva, *Phys. Rev. D* **103**, 115012 (2021).
13. Higgs-mass predictions in the MSSM and beyond, P. Slavich, S. Heinemeyer, E. Bagnaschi, H. Bahl, M. Goodsell, H.E. Haber, et al., *Eur. Phys. J. C* **81**, 5 (2021).
14. A natural mechanism for approximate Higgs alignment in the 2HDM, P. Draper, A. Ekstedt and H.E. Haber, *JHEP* **2105**, 235 (2021).
15. A tale of three diagonalizations, H.E. Haber, *Int. J. Mod Phys. A* **36**, 2130002 (2021).
16. Useful relations among the generators in the defining and adjoint representations of  $SU(N)$ , H.E. Haber, *SciPost Phys. Lect. Notes* **21** (2021).
17. Basis-independent treatment of the complex 2HDM, R. Boto, T.V. Fernandes, H.E. Haber, J.C. Romão and J.P. Silva, *Phys. Rev. D* **101**, 055023 (2020).

**Top cited publications** (with over 1000 citations on the INSPIRE database)

1. The Search for Supersymmetry: Probing Physics Beyond the Standard Model, H.E. Haber and G.L. Kane, *Physics Reports* **117**, 75 (1985).
2. Can the Mass of the Lightest Higgs Boson of the Minimal Supersymmetric Model be Larger than  $m_Z$ ?, H.E. Haber and R. Hempfling, *Phys. Rev. Lett.* **66**, 1815 (1991).
3. Higgs Bosons in Supersymmetric Models – I, J.F. Gunion and H.E. Haber, *Nucl. Phys. B* **272**, 1 (1986) [Erratum: *Nucl. Phys. B* **402**, 567 (1993)].
4. The CP-conserving two-Higgs-doublet model: The approach to the decoupling limit, J.F. Gunion and H.E. Haber, *Phys. Rev. D* **67**, 075019 (2003).