

CURRICULUM VITAE: Marcela Carena (March 2017)

Present Position

Distinguished Scientist
Head Theoretical Physics Department
International Relations, Directorate
Fermi National Accelerator Laboratory
P.O. Box 500, Batavia, IL 60510, U.S.A.

Professor of Physics
Physics Department, the Enrico Fermi Institute and the Kavli Institute for Cosmological Physics
The University of Chicago
5640 S. Ellis Ave, Chicago, IL 60637

Chair of the Division of Particles and Fields of the American Physical Society

Education

- **Diploma in Physics:** Dec. 1985, Instituto Balseiro, Universidad Nacional de Cuyo, S.C.de Bariloche, Argentina.
- **Ph.D. (High Energy Physics):** July 1989, University of Hamburg, DESY, Hamburg, Germany.

Previous Positions

1986 - 1989: Research Assistant in Particle Physics, Centro Atomico Bariloche, Bariloche, Argentina, and DESY Theory Group, Hamburg, Germany.

1989 - 1991: Postdoctoral Research Associate, Physics Department, Purdue University, U.S.A.

1991 - 1993: Postdoctoral Research Associate, Max-Planck-Institut für Physik - Werner-Heisenberg-Institut, Munich, Germany.

1993 - 1996: Fellow, CERN Theory Division, Geneva, Switzerland and (end 1996) Fellow, DESY Theory Group, Hamburg, Germany.

1997 - 1998: Associate Scientist at Fermilab, U.S.A.

1999 - 2000: Staff Member, CERN Theory Division, Geneva, Switzerland.

1998 - 2011: Scientist I and II, Fermilab Theory Group, U.S.A..

2008 - Present: Professor of Physics, Enrico Fermi Institute, U. of Chicago.

2011 - Present: Professor of Physics, Kavli Institute for Cosmological Physics, U. of Chicago.

Awards

- Simons Distinguished Visiting Scholar, KITP, UCSB, 2013.
- Research Award of the Alexander von Humboldt Foundation, 2010.
- Fellow of the American Physical Society (APS) since 2002.
- Marie Curie Fellow of the European Community, 1996
- John Stuart Bell Fellow at CERN, 1993-1996
- DESY Scholar at the University of Hamburg, 1978-1989.
- Balseiro Institute Scholar, 1982-1985
- Comision Nacional de Energia Atomica Scholar, 1986-1987

Recent Scientific Activities

- Chair-line of the Division of Particles and Fields of the American Physical Society, 2015 - 2018.
- Member of High Energy Physics Advisory Panel (HEPAP), 2017
- Serve on the Committee of Visitors for NSF, February 2015
- Member of the AAAS Program Committee, **2015 - 2018**
- Chair/Moderator of the Cosmic Neutrinos Symposia at AAAS, February 2015
- Chair of the Scientist III/ Distinguished Scientist Fermilab Committee, 2015- 2016
- Member of the Aspen Center for Physics, August 2004 - Present.
- Chair of the Program Committee of the Aspen Center for Physics, 2013 - 2014.
- Chair of the APS Lilienfeld Prize Selection Committee, 2012
- General Councillor and Executive Board Member of APS, 2008 (2010)- 2012
- Chair of the HEFT 2015 Workshop, The University of Chicago, November 2015.
- Co-chair the Composite Higgs Program at Fermilab, Fermilab -November 2015.
- Co-chair of the Aspen Winter Conference on Particle Physics: "Particle Physics on the Verge of Another Discovery?", Aspen, January 2016.
- Member of the Particle Astrophysics Scientific Assessment Group (PASAG) of the High Energy Physics Advisory Panel (HEPAP) to DOE and NSF, 2009.

- Co-chair of the Organizing Committee of the 19th International Conference on Supersymmetries in Physics (SUSY2011), Fermilab and U. of Chicago, August 2011.
- Member of the Scientific Council and the Search Committee of the ICTP South American Institute for Fundamental Research, 2012-2016.
- Member of the APS Sakurai Prize Selection Committee, 2012-2015.
- Advisory Board Member of the Mainz Institute for Theoretical Physics 2012- Present.
- Co-chair of the Organizing Committee of the Chicago 2012 Workshop on LHC Physics in the Higgs Era held at the Gleacher Center, U. of Chicago, April and November, 2012.
- Member of the Theoretical Advanced Study Institute (TASI) Board: 2008-2013.
- Member of the DESY Physics Research Committee, 2008-2015
- Chair of the Advisory Board of the Kavli Institute for Theoretical Physics, 2011-2012 and Member of the .Advisory Board and Executive Board - 2009-2013
- Co-director of the CERN-Fermilab Hadron Collider Physics Summer School, August 2008
- Member of the APS Committee on International Scientific Affairs 2005 -2008.
- Member of the Particle Physics Project Prioritization Panel (P5) of the U.S. DOE/NSF High Energy Physics Advisory Panel, 2005 - 2007.
- Member of over 40 International Scientific Committees during the past 10 years
- Lecturer at over 20 International Graduate Physics Schools on topics related to the Standard Model, Higgs Physics, Supersymmetry, Dark Matter and Baryogenesis, and Models of New Physics in Extra Dimensions, over the last 10 years.
- Over 300 invited talks/colloquia at Conferences and Scientific institutions around the world.

Well known publications in refereed Journals

(More than 250 citations per reference:)

- [1] “**A 125 GeV SM-like Higgs in the MSSM and the $\gamma\gamma$ rate**”, M. Carena, S. Gori, N. R. Shah and C. E. M. Wagner, JHEP **1203** (2012) 014.
- [2] “**Z' gauge bosons at the Tevatron**”, M. Carena, A. Daleo, B. A. Dobrescu and T. M. P. Tait, Phys. Rev. D **70**, (2004) 093009
- [3] “**CPsuperH: A Computational tool for Higgs phenomenology in the minimal supersymmetric standard model with explicit CP violation**”, J. S. Lee, A. Pilaftsis, M. Carena, S. Y. Choi, M. Drees, J. R. Ellis and C. E. M. Wagner, Comput. Phys. Commun.

156 (2004) 283.

[4] “**Suggestions for benchmark scenarios for MSSM Higgs boson searches at hadron colliders**”, M. Carena, S. Heinemeyer, C.E.M. Wagner, G. Weiglein, Eur. Phys. J. **C26** (2003)

[5] “**Higgs boson theory and phenomenology**”, M. Carena and H.E. Haber, Prog. Part. Nucl. Phys.**50** (2003).

[6] “ **$b \rightarrow s \gamma$ and Supersymmetry with Large $\tan\beta$** ”, M. Carena, D. Garcia, U. Nierste, C. Wagner, Phys. Lett. **B499** (2001).

[7] “**Effective Lagrangian for the $H^+\bar{t}b$ interaction in the MSSM and charged Higgs phenomenology**”, M. Carena, D. Garcia, U. Nierste, C.Wagner, Nucl. Phys. **B577** (2000).

[8] “**Renormalization group improved effective potential for the MSSM Higgs sector with explicit CP violation**”, M. Carena, John R. Ellis, A. Pilaftsis, C.E.M. Wagner, Nucl.Phys. **B586** (2000).

[9] “**Reconciling the two loop diagrammatic and effective field theory computations of the mass of the lightest CP - even Higgs boson in the MSSM**”, M. Carena, H.E. Haber, S. Heinemeyer, W. Hollik, C.E.M. Wagner, G. Weiglein, Nucl.Phys. **B580** (2000).

[10] “**MSSM Higgs boson phenomenology at the Tevatron collider**”, M. Carena, S. Mrenna and C. E. M. Wagner, Phys. Rev. D **60** (1999) 075010.

[11] “**Electroweak baryogenesis and Higgs and stop searches at LEP and the Tevatron**”, Nucl. Phys. B **524** (1998)

[12] “**Opening the window for electroweak baryogenesis**”, M. Carena, M. Quiros, C.E.M. Wagner, Phys.Lett. **B380** (1996).

[13] “**Effective Potential Methods and the Higgs Spectrum in the MSSM**”, M. Carena, M. Quirós and C. Wagner, Nucl. Phys. **B 461** (1996).

[14] “**Analytical Expressions for Radiatively Corrected Higgs Masses and Couplings in the MSSM**”, M. Carena, J.R. Espinosa, M. Quirós, C. Wagner, Phys. Lett. **B 355** (1995).

[15] “**Electroweak Symmetry Breaking and Bottom-Top Yukawa Unification**”, M. Carena, M. Olechowski, S. Pokorski and C.E.M. Wagner, Nucl. Phys. **B 426** (1994).

[16] “**On the Unification of Couplings in the Minimal Supersymmetric Standard Model**”, M. Carena, S. Pokorski and C.E.M. Wagner, Nucl. Phys. **B 406** (1993).