

CURRICULUM VITAE

Marcela Carena (July 2009)

Present Position

Scientist II
Theoretical Physics Department
Fermi National Accelerator Laboratory
P.O. Box 500, Batavia, IL 60510, U.S.A.

Professor part-time
Physics Department and the Enrico Fermi Institute
University of Chicago
5640 S. Ellis Ave
Chicago, IL 60637

Education

- **Undergraduate Studies:**

March 1980 - July 1982, Instituto Tecnológico Buenos Aires, Buenos Aires, Argentina and
Aug. 1982 - Dec. 1985, Instituto Balseiro, Centro Atómico Bariloche, S.C. de Bariloche,
Argentina.

- **Diploma in Physics:** Dec. 1985, Instituto Balseiro, Universidad Nacional de Cuyo,
S.C.de Bariloche, Argentina.

- **Graduate Studies (High Energy Physics):** Feb. 1986 - Sep. 1987, Centro Atómico
Bariloche, S.C. de Bariloche, Argentina and Oct. 1987 - July 1989, DESY, Hamburg,
Fed. Rep. of Germany.

- **Ph.D. (High Energy Physics):** July 1989, University of Hamburg at DESY, Hamburg,
Fed. Rep. of Germany.

Awards

- **1982 - 1985:** Balseiro Institute Scholar
- **1986 - 1987:** Comision Nacional de Energia Atomica Scholar
- **1987 - 1989:** DESY Scholar at the University of Hamburg.
- **1993 - 1996:** John Stewart Bell Fellow at CERN.
- **1996 - 1998:** Marie Curie Fellow of the European Community.
- **2002:** Fellow of the American Physical Society.

Previous Positions

- **Jan. 1986 - Sept. 1987:** Research Assistant in Particle Theory, advisor Prof. Luis Masperi, at the Centro Atomico Bariloche, S.C. de Bariloche, Argentina.
- **Oct. 1987 - July 1989:** Research Assistant in Particle Theory, advisor Prof. Roberto D. Peccei, at the DESY Theory Group, Hamburg, Fed. Rep. of Germany.
- **Sep. 1989 - Aug. 1991:** Postdoctoral Research Associate at the Physics Department, Purdue University, West Lafayette IN, U. S. A.
- **Sep. 1991 - Sep. 1993:** Postdoctoral Research Associate at the Max-Planck-Institut für Physik - Werner-Heisenberg-Institut, Munich, Fed. Rep. of Germany.
- **Oct. 1993 - Dec. 1996:** Fellow at the CERN Theory Division, Geneva, Switzerland and (end 1996) Fellow at the DESY Theory Group, Hamburg, Germany.
- **January 1997 - October 1998:** Associate Scientist (five year, tenure-track position) at the Fermilab Theoretical Physics Department, Batavia IL, U.S.A.
Promoted to Scientist I, November 1998.
- **April 1999 - April 2000:** Staff Member at CERN Theory Division, Geneva, Switzerland.
- **November 1998 - February 2004:** Scientist I at the Fermilab Theoretical Physics Department, Batavia IL, U.S.A.
Promoted to Scientist II (Present Position), February 2004.

Scientific Activities

- Co-convenor of the Higgs Working Group of the LEP 2 Workshop at CERN, **October 1994 - December 1995**.
- Co-convenor of the Supersymmetry Working Group of the Workshop on Physics at the First Muon Collider and at the Front End of the Muon Collider, held at Fermilab, **November 1997** .
- Chair of the Organizing Committee of the Tevatron RUN II Supersymmetry/Higgs Workshop at Fermilab, and Co-convenor of the Tevatron Higgs Working Group of the RUN II Workshop **February 1998 - November 1998/December 1999**. .
- Co-convenor of the Beyond the Standard Model I: Phenomenology and Experimental Limits Session of DPF 2000, held at the Ohio State University, **August 2000**.
- Co-chair of the Organizing Committee of the 7th International Conference on Supersymmetries in Physics (SUSY99), held at Fermilab, **June 1999**.
- Member of the Neutrino Factory and Muon Collider Collaboration **1999 - 2001**.
- Member of the Local and International Organizing Committee for the 8th International Conference on Supersymmetries in Physics (SUSY2K), held at CERN, **June-July 2000**.
- Member of the International Organizing Committee for the Conference on Higgs and Supersymmetry, held at Orsay, France, **March 2001**.
- Chair of the Organizing Committee of the Workshop on the Future of Higgs Physics, held at Fermilab, **May 2001**.
- Co-convenor of the Electroweak Symmetry Breaking Working Group at the Snowmass 2001 Meeting on The Future of Particle Physics, held at Snowmass, **July 2001**.
- Member of the International Organizing Committee for the 10th International Conference on Supersymmetries in Physics (SUSY02), held at DESY, **June 2002**.
- Co-convenor of the Session on Electroweak Symmetry Breaking at the 18th International Workshop on Weak Interactions and Neutrinos, held at the Univ. of Canterbury, New Zealand **January 2002**.
- Member of the Linear Collider Physics and Detector Group at Fermilab, **2001 - 2003**.
- Member of the International Advisory Committee for the Aspen Winter 2003 Conference on Particle Physics, held at the Aspen Center for Physics, **January 2003**.

- Member of the International Scientific Committee for the Les Houches Workshop on Physics at TeV Colliders, Les Houches, **May-June 2003**.
- Member of the International Organizing Committee for the 11th Annual International Conference on Supersymmetry and the Unification of the Fundamental Interactions (SUSY03), held at the University of Arizona, **June 2003**.
- Member of the Canadian Subatomic Grant Selection Committee, **October 2002 - October 2005**.
- Member of the Executive Committee of the Division of Particles and Fields of the American Physical Society, **January 2003 - December 2005**.
- Member of the Fermilab Long-range Planning Committee, **April 2003 - June 2004**.
- Member of the Aspen Center for Physics, **August 2004 - July 2009**
 Member of the Aspen Center for Physics Nomination Committee **2005 and 2006**
 Member of the Aspen Center for Physics Summer Public Lectures Committee **2007**.
 Member of the Aspen Center for Physics Summer Program Committee **2009**.
- Member of the Organizing Committee of the Tevatron Connection Series, **2004 - 2005**.
- Chair of the Organizing Committee of the TeV4LHC Workshop, **May 2004 - September 2006**.
- Member of the Advisory Board of the 12th International Conference on Supersymmetry and Unification of Fundamental Interactions, and Co-convenor of the Electroweak Symmetry Breaking Session, held in Tsukuba, Japan, **June 2004**.
- Co-convenor of the Electroweak Physics session at the the 32nd International Conference on High Energy Physics (Rochester Series), held in Beijing, China, **August, 2004**.
- Member of the Particle Physics Project Prioritization Panel (P5) of the High Energy Physics Advisory Panel (HEPAP) to the US Department of Energy and the US National Science Foundation. **June 2005 - Present**.
- Member/Chair of the DPF Nomination Committee **2006 - 2007**.
- Member of the Committee on International Affairs of the American Physical Society **2006-2008**
- Member of the Fermilab Committee on Hiring and Retention of Scientific Staff **2006 -2007**.
- Co-chair of the Organizing Committee of the Mini Workshop on “Interdisciplinary” Approach to constraint Low-Energy SUSY Models, held at Fermilab, **April 2006**

- Co-chair of the Organizing Committee of the Symposium on: “The LHC Early phase for the ILC, held at Fermilab, U.S.A **April, 2007**
- Co-organizer of the Symposium on: “The Hunt for Dark Matter: Collider, Direct and Indirect searches”, held at Fermilab, U.S.A **May, 2007**
- Member of the Tollestrup Award Committee for Outstanding Postdoctoral Research **April 2007- Present**
- Member of the Program Committee of the American Linear Collider Physics Group (ALCPG 07), held at Fermilab **October 2007**
- Co-director of the CERN-Fermilab Hadron Collider Physics Summer School, to be held at Fermilab, **August 2008**
- Co-convenor of the Session on Collider Physics Phenomenology and Beyond the Standard Model Physics of the 34th International Conference for High Energy Physics (ICHEP08), to be held in Philadelphia, **July-August, 2008**.
- General Councillor of the American Physical Society, **January 2008 - January 2012**
- Member of the Theoretical Advanced Study Institute (TASI) Board: **April 2008- March 2013**
- Member of the Particle Astrophysics Scientific Assessment Group (PASAG) of the High Energy Physics Advisory Panel (HEPAP) to the US Department of Energy and the US National Science Foundation, **April- August 2009**
- Co-convenor of the 2009 Aspen Summer Program: “Beyond the Standard Model at the Threshold” at the Aspen Center for Physics, **July-August 2009**
- Member of the program committee of the Physics at LHC 2010 conference to be held at DESY, Hamburg, Germany, **June 2010**.

Teaching Activities

- **Aug. 1986 - Dec. 1986:** Teaching Assistant for a course in “Nuclear Physics” at the Instituto Balseiro, University of Cuyo, S.C. de Bariloche, Argentina.
- **Oct. 1986 - Dec. 1986:** Lecturer for a course in “Field Theory” at the Instituto Balseiro, University of Cuyo, S.C. de Bariloche, Argentina.
- **October 1993:** Lecturer for a course in “Supersymmetry and Grand Unification” at the Karlsruhe Autumn School, Sand, Germany.

- **May 1996:** Lecturer for a course in “Higgs and Supersymmetric Particle Physics at LEP2”, CERN Academic Training Courses, CERN, Geneva, Switzerland.
- **May 1997:** Lecturer for a course in “Higgs and Supersymmetric Particle Physics at the Tevatron Collider”, Fermilab Academic Lecture Series, Fermilab, Batavia IL, U.S.A.
- **September 1998:** Lecturer for a course in “Supersymmetry and Alternative Theories”, Ecole d’Ete de Physique de Particules, Centre de Physique de Particules de Marseille, Marseille, France.
- **August-September 1999:** Lecturer for a course in “Beyond the Standard Model” at the 1999 European School of High Energy Physics (CERN School), Bratislava, Slovakia.
- **June 2000:** Lecturer for a course in “Phenomenology and Searches for Supersymmetry” at the ASI-NATO School, St Croix, U.S.A.
- **August 2000:** Lecturer for a course in “Higgs Boson Phenomenology” at the IX Mexican School on Particles and Fields, Puebla, Mexico.
- **May-June 2001:** Lecturer for a course in “The Minimal Supersymmetric Standard Model”, Fermilab Academic Lecture Series, Fermilab, Batavia IL, U.S.A.
- **June 2002:** Lecturer for a course in “Higgs Theory and Phenomenology”, Theoretical Advanced Study Institute in Elementary Particle Physics, University of Colorado (TASI 02), Boulder CO, U.S.A.
- **July 2004:** Lecturer for a course in “Higgs Boson Physics”, Sixth J. J. Giambiagi Winter School on Physics, University of Buenos Aires, Buenos Aires, Argentina.
- **August 2005:** Lecturer for a course in “Higgs Boson Physics”, Les Houches Summer School: Particle Physics Beyond the Standard Model Les Houches, Chamonix Valley, France
- **October 2006:** Lecturer for a course in “The Standard Model”, Pan-American Studies Institute (PASI) School on Beyond the Standard Model in Cosmology, Astroparticle and Particle Physics, Puerto Vallarta, Mexico.
- **June 2007:** Lecturer for a course in “Supersymmetry”, ICTP Summer School on Particle Physics, Trieste, Italy.
- **June 2008:** Lecturer for a course in “Higgs Physics”, Theoretical Advanced Study Institute in Elementary Particle Physics, University of Colorado (TASI 08), Boulder CO, U.S.A.
- **Spring Quarter 2009 :** Lecturer for Phys 48801: “Supersymmetry and the LHC” at the University of Chicago, Chicago, IL, USA.

Invited Talks

- **“Low Energy Supergravity : the Top Quark Mass”**
Argentine Physical Society Meeting, La Cumbre, Cordoba, Argentina, Oct. 1986 .
- **“The Adiabatic Method and the Sphaleron Charge”**
DESY, Hamburg, Fed. Rep. of Germany, May 1988.
- **“Fermion Number Induced by Bosonic Topological Configurations”**
Purdue University, W. Lafayette IN, U.S.A, Oct. 1989.
- **“Dynamical Breakdown of Z2 and Parity Symmetries in QED₃ with Fermion Self-Couplings”**
International Conference on High Energy Physics: Beyond the Standard Model II, Univ of Oklahoma, Norman OK, U.S.A., Nov. 1990.
- **“Phase Structure and Scaling Properties of QED₃ ”**
Montreal Univ., Montreal, Quebec, Canada, Feb. 1991;
Univ. of Michigan, Ann Arbor MI, U.S.A., Feb. 1991 and
University of Pittsburgh, Pittsburgh PA, U.S.A., May 1991.
- **“Dynamical Structure of Quenched QED”**
Santa Fe Workshop, ”Physics of the Standard Model and Beyond”, Santa Fe NM, U.S.A, Aug. 1991.
- **“Dynamical Symmetry Breaking and a Chern-Simons term in QED₃ ”**
The Vancouver Meeting: Particles and Fields’91, Vancouver, B.C., Canada, Aug. 1991.
- **“The Minimal Supersymmetric Standard Model with Dynamical Electroweak Symmetry Breaking ”**
Contribution to a Series of Seminars held at the Max-Planck-Institut für Physik, Munich, Fed. Rep. of Germany, Nov. 1991, and
V Argentine Symposium of Particles and Field Theory, Centro Atomico Bariloche, S.C. de Bariloche, Argentina, Jan. 1992.
- **“Bound States Mass in Quenched QED”**
Physics Department, Technische Universität München, Garching, Fed. Rep. of Germany, Nov. 1991.
- **“On the Finite Temperature Effective Potential in Scalar QED with N Flavors”**
Fermi National Accelerator Laboratory, Batavia IL, U.S.A., July 1992.
- **“Unification of Couplings and the Top Quark Sector”**
XXVIIIth Rencontres de Moriond on Electroweak Interactions and Unified Theories, Les

Arcs, France, March 1993 and

Extended version in XVI Kazimierz Meeting on Particle Physics: "New Physics with New Experiments", Kazimierz, Poland, May 1993.

- **"Supersymmetric Grand Unified Theories and Dynamical Electroweak Symmetry Breaking"**
Institut d'Ete de Physique des Particules, Orsay and Saclay, France, July 1993.
- **"The Top Quark Sector and Minimal Supersymmetric Grand Unification"**
International Europhysics Conference on High Energy Physics, Marseille, France, July 1993.
- **"On the Infrared Fixed Point of the Top Quark Mass and its Phenomenological Implications within the MSSM"**
University of Heidelberg, Heidelberg, Germany, January 1994 and
IFT Workshop on Yukawa Couplings and the Origins of Mass, University of Florida, Gainesville FL, U.S.A., February 1994.
- **"Implications of $M_t = 174 \pm 16$ GeV for SUSY Models "**
ALEPH General Meeting, CERN, Geneva, Switzerland, May 1994.
- **"Unification of Couplings in the MSSM "**
International Workshop on Supersymmetry and Unification of Fundamental Interactions, University of Michigan, Ann Arbor MI, U.S.A., May 1994.
- **"Phenomenological Implications of SUSY Grand Unified Models"**
CEBAF, Newport News VA, U.S.A., September 1994.
- **"The Top Quark Mass and Supersymmetry"**
Ohio State University, Columbus OH, U.S.A., November 1994.
- **"Higgs and Supersymmetric Signals at the Infrared Fixed Point of the Top Quark Mass"**
University of Pennsylvania, Philadelphia PA, U.S.A., September 1994;
Laboratoire de l'Accelérateur Lineaire, Orsay, France, December 1994 and
DELPHI General Meeting, CERN, Geneva, Switzerland, December 1994.
- **"The Higgs Sector of the MSSM with unification of couplings"**
2nd Meeting of the Higgs Working Group of the LEP2 Workshop. CERN, Geneva, Switzerland, December 1994.
- **"LEP2 Higgs Searches and Bottom-Tau Yukawa Coupling Unification"**
CERN, Geneva, Switzerland, February 1995.

- **“On the Top Quark Mass Infrared Fixed Point”**
XXXth Rencontres de Moriond on Electroweak Interactions and Unified Theories, Les Arcs, France, March 1995 and
European Community Network Meeting on Flavour Physics, Warsaw, Poland, April 1995.
- **“Bounds on the Higgs Mass”**
L.A.P.P., Annecy, France, May 1995.
- **“Theoretical Aspects of the Higgs at LEP2”**
2nd General Meeting of the LEP2 Workshop, CERN, Geneva, Switzerland, June 1995.
- “Review talk on: **“Unification of Couplings in the MSSM”**
International Europhysics Conference on High Energy Physics, Brussels, Belgium, July 1995.
- **“Higgs and New Particle Physics at LEP2”**
3rd Meeting of the Workshop on “Physics with e^+e^- Linear Colliders”, DESY–Hamburg, Germany, September 1995 and
Summer Institute on “Signals of Unified Theories”, Laboratori Nazionali del Gran Sasso, Italy, September 1995.
- **“Phenomenology of Higgs Physics at LEP2”**
3rd General Meeting of the LEP2 Workshop, CERN, Geneva, Switzerland, November 1995.
- “Review talk on: **Higgs and Supersymmetric Particle Physics at LEP2”**
4th International Conference on Supersymmetries in Physics (SUSY 96), College Park, MD, U.S.A., May-June 1996.
- **“Bottom-Up Approach and Supersymmetry Breaking”**
Aspen Center for Physics Workshop on “Flavor and Gauge Hierarchy Problems”, Aspen, CO, U.S.A., July 1996.
- **“The Electroweak Phase Transition in the MSSM”**
DESY Theory Group, Hamburg, Germany, October 1996.
- **“Supersymmetry: From the Weak scale to Planck scale”**
Physics Department, University of Wisconsin, Madison, WI, U.S.A., March 1997.
- **“Electroweak Baryogenesis and Higgs Physics”**
International Conference on Recent Developments in Phenomenology (PHENO97), University of Wisconsin, Madison, WI, U.S.A., March 1997.
- “Review talk on **Electroweak Baryogenesis”**
5th International Conference on Supersymmetries in Physics (SUSY97), University of Pennsylvania, Philadelphia, PA, U.S.A., May 1997.

- **“Prospects for New Particle Searches at the Upgraded Tevatron”**
OPAL week at CERN, Geneva, Switzerland, July 1997.
- **“New Phenomena at LEP and the Tevatron Colliders”**
Physics Department, University of Lyon, Lyon, France, July 1997.
- **“Supergravity Vs. Gauge Mediated SUSY Breaking Scenarios”**
CDF New Phenomena Meeting, Fermilab, Batavia, IL, U.S.A., October 1997.
- **“Summary of the SUSY Searches and Measurements Working Group”**
Workshop on Physics at the First Muon Collider and at the Front End of a Muon Collider, Fermilab, Batavia, IL, U.S.A, November 1997.
- **“Supersymmetry, the Top Quark and the Higgs Mass ”**
Physics Department, SUNY at Stony Brook, NY, U.S.A, January 1998 and
Physics Department, UC Davis, CA, U.S.A, March 1998.
- **“Physics at RUN II”**
DOE 1998 Annual Review, Fermilab, Batavia, IL, U.S.A. March 1998.
- **“Electroweak Baryogenesis and Supersymmetry”**
Physics Department, Rutgers University, Piscataway, NJ, U.S.A, May 1998.
- **“Higgs Physics: Theory and Experiment”**
Physics Department, University of Chicago, Chicago, IL, U.S.A, May 1998.
- **“The Electroweak Phase Transition in the MSSM”**
1st European Meeting on : From Planck scale to the Electroweak Scale, Kazimierz, Poland. May 1998.
- **“The Higgs Sector as a probe of the Minimal Supersymmetric Standard Model”**
SUSY98 Conference, Oxford, England, July 1998.
- **“Phenomenology of Higgs Physics at the Tevatron”**
Joint Working Group Meeting of the SUSY/HIGGS Tevatron Run II Workshop, Fermilab, Batavia, IL, U.S.A., September 1998.
- **“New Developements in Higgs Physics at RUN2 and Beyond”**
Summary Meeting of the SUSY/HIGGS Tevatron Run II Workshop, Fermilab, Batavia, IL, U.S.A., November 1998.
- **“Prospects for Higgs Physics at the Tevatron Collider”**
IV IFT-UAM Christams Workshop on Particle Physics, Universidad Autonoma de Madrid, Madrid, Spain, December 1998;
Particle Physics - Advances in Particle Physics: Recent Results and Open Questions,

Aspen, U.S.A., January 1999 and
IFT Workshop on Higgs and Supersymmetry: Search and Discovery, Gainesville, Florida,
U.S.A, March 1999.

- **“The Complementarity of LEP, Tevatron and LHC for Higgs Searches”**
XXXIVth Rencontres de Moriond on “Electroweak Interactions and Unified Theories”,
Les Arcs, France, March 1999 and
Second European Meeting From the Planck Scale to the Electroweak Scale, Bad Honnef,
Germany, April 1999.
- **“Beyond the Standard Model”**
Plenary talk at the International Europhysics Conference, HEP99, Tampere, Finland.
- **“Update/Prospects of MSSM Higgs Boson Mass and Coupling Calculations”**
Workshop on New Theoretical Developments for Higgs Searches at LEP, CERN, Geneva,
Switzerland, October 1999;
Muon Collider meeting, CERN Geneva, Switzerland, March 2000 and
XXXVth Rencontres de Moriond, QCD session, Les Arcs, France, March 2000.
- **“Supersymmetry and Higgs boson phenomenology at LEP, the Tevatron and LHC”**
APS April 2000 Meeting, Long Beach, CA, USA, April 2000.
- **“Recent Developments on Higgs Physics in the SM and the MSSM”**
DPF Meeting, Columbus, OH, U.S.A, August 2000.
- **“MSSM Higgs Sector Phenomenology with explicit CP violation”**
RadCor 2000 Conference, Carmel, CA, U.S.A, September 2000 and
Workshop on SUSY Models and Cosmology, Heidelberg, Germany, April 2001.
- **“Recent Theoretical Developments in the MSSM Higgs Sector”**
SLAC Theory Seminar, September 2000.
- **“Tevatron Physics at RUN2”**
Fermilab DOE Annual Review, Fermilab, Batavia, IL, U.S.A., March 2001.
- **“SUSY Prospects at the Tevatron RUN2”**
Higgs and Supersymmetry Conference, Orsay, France, March 2001 and
Theoretical Physics Seminar at DESY-Hamburg, Germany, April 2001.
- **“Supersymmetry, CP violation and Baryogenesis”**
Pecceifest, UCLA, Los Angeles January 2002 and
Electroweak Symmetry Breaking Discussion Session at the 18th International Workshop
on Weak Interactions and Neutrinos WIN 02, New Zealand, January 2002.

- **“The Standard SUSY Higgs plays Pekaboo”**
Aspen Winter Conference, Aspen, February 2002.
- **“Physics at the Tevatron”**
DPF: Standard Model and Beyond II Session of the APS April Meeting, Albuquerque, April 2002
- **“Physics at the Tevatron”**
PHENO 2002 SYMPOSIUM , University of Wisconsin, Madison, April 2002
- **“Branes are Opaque”**
Fifth European Meeting From the Planck Scale to the Electroweak Scale: SUPERSYMMETRY AND BRANE WORLDS. Kazimierz, Poland, May 2002.
- **“Higgs Physics at Hadron Colliders: The Tevatron”**
The 10th International Conference on Supersymmetry and Unification of Fundamental Interactions, SUSY02, DESY, June 2002.
- **“Summary of the Higgs/Electroweak Working Group (Theory)”**
LCWS 2002, Jeju Island, Korea, August 2002.
- **“MSSM Higgs Boson Phenomenology at Hadron Colliders”**
CDF Higgs Working Group Meeting, Fermilab, October 2002.
- **“What we need to know about the Higgs ”**
LHC/Linear Collider Physics Workshop, Fermilab, Dec 12-13, 2002.
- **“Opaque Branes in Flat and Warped Spaces”**
Aspen Winter 2003 Conference on Particle Physics: At the Frontiers of Particle Physics, Aspen, January 2003.
- **“Electroweak Physics and Bulk Gauge Fields”**
The International Conference 20 Years of SUGRA and Search for SUSY and Unification (SUGRA20), Boston, USA, March 2003.
- **“Electroweak Physics and Extra Dimensions”**
SUSY 2003, Supersymmetry in the Desert, The 11th International Conference on Supersymmetry and the Unification of the Fundamental Interactions, Tucson, Arizona, June 2003.
- **“Physics Landscape: The Energy Frontier”**
Physics Landscapes Open Session, Fermilab, September 2003.
- **“Selected Topics in Higgs and Supersymmetry”**
Collider Physics Conference, Kavli Institute for Theoretical Physics, Santa Barbara, CA, January 2004.

- **“Dark Matter and Electroweak Baryogenesis”**
Rencontres de Moriond: Electroweak Interactions and Unified Theories, La Thuile, Italy, March 2004;
Theoretical Physics Department, Northwestern University, IL, May 2004 and
Theoretical Physics Department, SLAC, CA, May 2004.
- **“Higgs Bosons Phenomenology”**
Fifth Latin American Symposium on High Energy Physics (SILAFEA), Lima, Peru, July 2004.
- **“Z-prime Gauge Bosons at the Tevatron ”**
Mini-Workshop on Z-primes, Northwestern University, Evanston, IL, USA, November 2004.
- **“MSSM Higgs Sector with CP-Violation”**
TeV4LHC Workshop, Brookhaven National Laboratory, Upton NY, USA, January 2005.
- **“Challenges for Higgs Searches at the LHC ”**
Enrico Fermi Institute Mini-Symposium, University of Chicago, Chicago, IL, USA, March 2005.
- **“Challenges for MSSM Higgs Searches with CP violation”**
CPNSH Workshop, SLAC, CA, USA, March 2005.
- **“MSSM Charged Higgs from Top Quark Decays”**
Top Quark Symposium, University of Michigan, Ann Arbor , MI, USA, April 2005.
- **“Warped Fermions”**
APS April Meeting, Tampa, FL, USA, April 2005.
- **“Warped Fermions”**
Theory Institute on Supersymmetry, Higgs and Extra Dimensions, Argonne National Laboratory, IL, USA, May 2005.
- **“News/Views from the Theory Group”**
Users Executive Committee Meeting, Fermilab, IL, USA, May 2005.
- **“Dark Matter and Electroweak Baryogenesis in the MSSM ”**
Planck05: From the Planck Scale to the Electroweak Scale, ICTP, Trieste, Italy, May 2005.
- **“Supersymmetry, Higgs Physics and CP violation”**
Kaon 2005, Northwestern University, IL, USA, June 2005.
- **“Baryogenesis”**
Pre-SUSY 2005, University of Durham, Durham, United Kingdom, July 2005.

- **“Fisica del Higgs: Rotura de la Simetria Electrodebil”**
Jornadas de Fisica Bariloche, Instituto Balseiro, San Carlos de Bariloche, Argentina, December 2005.
- **“Probing Supersymmetry through Higgs, Flavor Violation and Dark Matter Searches”**
Joint Theoretical and Experimental Seminar, Fermilab, Batavia, USA, May 2006.
- **“Probing Supersymmetry through Higgs and Flavor Violation Searches”**
9th Conference on the Intersections of Particle and Nuclear Physics, Puerto Rico, USA, May 2006, and
14th International Conference on Supersymmetry and the Unification of Fundamental Interactions, SUSY06, Irvine, California, USA, June 2006.
- **“Probing the SUSY Origin of Matter at the ILC”**
Vancouver Linear Collider Workshop, University of British Columbia, Vancouver, Canada, July 2006.
- **“Probing SUSY with Higgs and B physics at the LHC”**
Los Alamos National Laboratory, Santa Fe 2006 Summer Workshop: Particle Theory and the LHC, Santa Fe, USA, July 2006, and
Aspen Summer Workshop, Aspen, USA, August 2006.
- **“Higgs Physics at the LHC”**
Pascos 2006, The Ohio State University, Columbus, USA, September 2006.
- **“Challenges for MSSM Higgs discoveries at Colliders”**
2007 Aspen Winter Conference on Particle Physics Program ”New Physics at the Electroweak Scale and New Signals at Hadron Colliders” Aspen, Colorado, USA, January 2007.
- **“Higgs and B Physics Phenomenology at the Tevatron and LHC”**
The XLIInd Rencontres de Moriond session devoted to Electroweak Interactions and Unified Theories, La Thuile, Italy, March 2007.
- **“New Signatures from Warped Space - an Alternative to Supersymmetry”**
Department of Physics, University of Chicago, Chicago, U.S.A. April 2007.
- **“The Mystery of Mass”**
Trends in Theoretical Physics IV, Centro de Fisica y Matematica de America del Sur, Buenos Aires, Argentina, May 2007.
- **“B Physics, Direct Dark Matter Detection and Supersymmetric Higgs Searches at Colliders”**

CDF Meeting, Fermilab, Batavia, USA, May 2007;
Eötvös-Cornell Summer Workshop on Particle Theory: Beyond the Standard Model at the Dawn of the LHC Era, Budapest, Hungary, June 2007 and
Extended Version at the LHC-Cosmology Interplay Workshop at CERN, Geneva, Switzerland, July 2007
Extended Version at the Physics Department at the University of Chicago, Chicago, USA, February 2008.

- **“Models and Signatures from Warped Space”**
Tenth European Meeting from the Planck Scale to the Electroweak Scale (Planck07), Warsaw, Poland, June 2007.
- **“Three Mysteries of Matter”**
Standard Model and Beyond in the LHC era Universidad Tecnica Federico Santa Maria Valparaiso Chile, January 2008.
- **“Electroweak Interactions and Unified Theories: Theory Summary”**
Theory Summary talk at the XLIIIrd Rencontres de Moriond, La Thuile, Italy, March 2008
- **“Supersymmetry: Motivation, Models and Signatures”**
WE-Heraus Seminar: Physics at the Terascale, Physikzentrum Bad Honnef, Germany, April, 2008
Summer Forum on frontiers of High Energy Physics-LHC Physics, Weihai, China, July 2008.
- **“The Baryogenesis Window in the MSSM”**
Cosmo 08, University of Wisconsin, Madison, WI, USA, August 2008.
- **“Beyond the Standard Model Physics at the LHC**
Conference on “High Precision for Hard Processes at the LHC, University of Buenos Aires, Argentina, October 2008.
- **“Beyond the Standard Model Physics**
“10-25 years of D0-France Conference, Paris VI and VII University, Paris, France, October 2008.
- **“Warped Extra Dimensions and Heavy Quarks at the Tevatron**
Invited talk at the D0 Collaboration New Phenomena Workshop, Fermilab, USA, October 2008.
- **“Dynamical Electroweak Symmetry Breaking in Warped Extra Dimensions**
2009 Summer Winter Conference, Aspen, CO, USA, February 2009.

- **“Dynamical Electroweak Symmetry Breaking in Warped Extra Dimensions**
CERN TH Institute: From the LHC to a Future Collider, CERN, Geneva Switzerland, February 2009.
- **“Supersymmetric Higgs** Plenary talk at the SUSY 2009 Conference, Northeastern University, Boston, USA, June 2009.

Colloquia and Public Lectures

- **“Light Higgs, Light Stops and Electroweak Baryogenesis”**
CERN Theory Division Colloquium, CERN, Geneva, Switzerland, July 1997.
- **“Higgs and Supersymmetric Particle Physics at LEP and the Tevatron”**
Colloquium at the Physics Department, UC Davis, CA, U.S.A, March 1998 and
Colloquium at Rutgers University, Piscataway, NJ, U.S.A, May 1998.
- **“Higgs Boson: The Origin of Mass ”**
Heinz R. Pagels Memorial Lectures (2002), Aspen CO, July 2002.
- **“Higgs Physics: The Origin of Mass” or “The quest for Electroweak Symmetry Breaking”**
Colloquium at Texas A&M, College Station, Texas, May 2003 and
Colloquium at Ohio State University, Columbus, Ohio, April 2004.
- **“The Energy Frontier: in the Search for New Physics”**
Colloquium at Texas A&M, College Station, Texas, October 2003;
Colloquium at UCSC, Santa Cruz, CA, May 2004 and
Colloquium at Purdue University, West Lafayette, IN, USA, November 2004.
- **“Discovering the Quantum Universe”**
Public Lecture, Einstein Conference at Francis W. Parker School, Chicago, USA, December 2005 .
- **“Discovering the Quantum Universe”**
Physics Department Colloquium, University of Buenos Aires, Buenos Aires, Argentina, December 2005.
- **“Collider Discoveries and the Quantum Universe”**
Colloquium at the Department of Physics, University of Florida, Gainesville, USA, March 2006.
- **“The Mystery of Mass”**
Colloquium at the Department of Physics, University of Wisconsin, Madison, USA, November 2006.

- **“Three Mysteries of Matter”**
 Colloquium at the Kavli Institute for Cosmological Physics, University of Chicago, Chicago, USA, May 2007;
 Colloquium at the Graduiertenkolleg Seminar Serie Johannes Gutenberg University, Mainz, Germany, April 2008
 Colloquium at the Department of Physics and Astronomy, Northwestern University, Evanston, U.S.A., May 2008 and
 Colloquium at the Physics Department of Michigan State University, East Lansing, USA, January 2009.

- **“Descubriendo el Universo Cuántico”**
 A dialogue in Spanish, Flug Auditorium, Aspen Center for Physics, Aspen, USA, August 2008.

- **“Coming Soon at the Large Hadron Collider (LHC) - the Higgs, dark matter, and maybe even black holes or new dimensions of space”**
 Summer Public Lectures, Paepcke Auditorium, Aspen, USA, August 2009

- **“ The Power of Antimatter ”**
 Lecture Night: Angels and Demons - The science revealed- Fermilab, USA, May 2009.

Publications

“The PAMELA excess from neutralino annihilation in the NMSSM ”.

Yang Bai, Marcela Carena, Joseph Lykken
 e-Print: arXiv:0905.2964 [hep-ph]

“Gauge-Higgs Unification, Neutrino Masses and Dark Matter in Warped Extra Dimensions ”.

Marcela Carena, Anibal D. Medina, Nausheen R. Shah, Carlos E.M. Wagner
 Phys. Rev. **D79** 096010 (2009).

“Higgs Bosons, theory and searches on 2008 the Review of Particle Physics”

G. Bernardi , M. Carena, T. Junk (Fermilab)
 Phys. Lett. **B667** 1,2008.

“Minimal Flavor Violation and the Scale of Supersymmetry Breaking ”

M. Carena, A. Menon, C.E.M. Wagner.
 Phys. Rev. **D79** 075025 (2009) .

“The Baryogenesis Window in the MSSM ”.

M. Carena, G. Nardini, M. Quiros, C.E.M. Wagner
Nucl.Phys. **B812** 243-263,2009.

“The Planck Scale from Top Condensation ”.

Yang Bai, Marcela Carena, Eduardo Ponton
e-Print: arXiv:0809.1658 [hep-ph]

“Light Stop Searches at the LHC in Events with One Hard Photon or Jet and Missing Energy ”

M. Carena, A. Freitas, C.E.M. Wagner
JHEP **0810** 109,2008.

“The Effective Theory of the Light Stop Scenario”

Marcela Carena, Germano Nardini, Mariano Quiros, Carlos E.M. Wagner
JHEP **0810** 062,2008.

“Heavy Quarks Above the Top at the Tevatron”

Anupama Atrre, Marcela Carena, Tao Han, Jose Santiago
Phys. Rev. **fD79**, 096010 (2009).

“Higgs Signal for $h \rightarrow aa$ at Hadron Colliders ”

M. Carena, T. Han, G-Y Huang and C. Wagner.
JHEP **0804**, 092 (2008).

“Collider Phenomenology of Gauge-Higgs Unification Scenarios in Warped Extra Dimensions ”

M. Carena, A. Medina, B. Panes, N. Shah and C. Wagner.
Phys. Rev. D **77**, 076003 (2008)

“CPsuperH2.0: an Improved Computational Tool for Higgs Phenomenology in the MSSM with Explicit CP Violation ”

M. Carena, J. Ellis, J.S. Lee, A. Pilaftsis, C.E.M. Wagner
Comput.Phys.Comm. 156:283-317,2004.

“Phenomenology of the nMSSM from colliders to cosmology ”

C. Balazs, M. Carena, A. Freitas and C. E. M. Wagner.
JHEP **0706**, 066 (2007).

“Challenges for MSSM Higgs searches at Hadron Colliders ”

M. Carena, A. Menon and C. E. M. Wagner.
Phys. Rev. D **76**, 035004 (2007)

“Electroweak constraints on warped models with custodial symmetry ”

M. Carena, E. Ponton, J. Santiago and C. E. M. Wagner.
Phys. Rev. D **76**, 035006 (2007)

“Self-accelerating Warped Braneworlds”

Marcela Carena, Joseph Lykken, Minjoon Park, Jose Santiago.
Phys. Rev. D **75**, 026009 (2007)

“The Interplay Between Collider Searches For Supersymmetric Higgs Bosons and Direct Dark Matter Experiments.”

Marcela Carena, Dan Hooper, Alberto Vallinotto.
Phys. Rev. **D75**, 055010 (2007)

“Collider signature of T-quarks.”

Marcela Carena, Jay Hubisz, Maxim Perelstein, Patrice Verdier.
Phys. Rev. **D75**, 091701 (2007)

“Collider searches and cosmology in the MSSM with heavy scalars”

M. Carena and A. Freitas.
Phys. Rev. **D74**, 095004 (2006)

“Light Kaluza Klein States in Randall-Sundrum Models with Custodial SU(2)”

Marcela Carena, Eduardo Ponton, Jose Santiago and Carlos E.M. Wagner.
Nucl. Phys. **B759**, 202 (2006)

“Implications of direct dark matter searches for MSSM Higgs searches at the Tevatron”

Marcela Carena, Dan Hooper, Peter Skands
Phys. Rev. Lett. **97**, 051801 (2006)

“Constraints on B and Higgs physics in minimal low energy supersymmetric models”

M. Carena, A. Menon, R. Noriega-Papaqui, A. Szykman, C.E.M. Wagner.
Phys. Rev. **D74**, 015009 (2006)

“Revamped braneworld gravity”

Ruoyu Bao, Marcela Carena, Joseph Lykken, Minjoon Park, Jose Santiago.

Phys. Rev. **D73**, 064026 (2006)

“MSSM Higgs boson searches at the Tevatron and the LHC: Impact of different benchmark scenarios.”

M. Carena, S. Heinemeyer, C.E.M. Wagner, G. Weiglein.
Eur. Phys. J. **C45**, 797 (2006)

“Analyzing the scalar top co-annihilation region at the ILC”

M. Carena, A. Finch, A. Freitas, C. Milstene, H. Nowak, A. Sopczak.
Phys. Rev. **D72**, 115008 (2005)

“The Interval Approach to Braneworld Gravity”

M. Carena, J. Lykken and M. Park
Phys. Rev. **D72**, 084017 (2005)

“The supersymmetric origin of dark matter.”

C. Balazs, M. Carena, A. Menon, D.E. Morrissey and C.E.M. Wagner
Phys. Rev. **D71**, 075002 (2005)

“Electroweak Baryogenesis and New TeV Fermions”

Marcela Carena, Ariel Megevand, Mariano Quiros, Carlos E.M. Wagner
Nucl. Phys. **B716**, 319 (2005)

“Warped Fermions and Precision Tests”

Marcela Carena, Antonio Delgado, Eduardo Ponton, Tim M.P. Tait, C.E.M. Wagner.
Phys. Rev. **D71**, 015010 (2005)

“Z-prime gauge bosons at the Tevatron ”

M. Carena, A.Daleo, B. Dobrescu and Tim Tait
Phys. Rev. D **70**, 093009 (2004)

“Dark Matter, Light Stops and Electroweak Baryogenesis”

C. Balazs, M. Carena and C.E.M. Wagner
Phys. Rev. D **70**, 015007, (2004)

“Invisible Z-boson decays at e^+e^- colliders”

M. Carena, A. de Gouvea, A. Freitas and M. Schmitt
Phys. Rev. D **68**, 113007 (2003)

“CPsuperH: a Computational Tool for Higgs Phenomenology in the Minimal Su-

persymmetric Standard Model with Explicit CP Violation”

J.S. Lee, A. Pilaftsis, M. Carena, S.Y. Choi, M. Drees, John R. Ellis, C.E.M. Wagner.
Comput. Phys. Commun. **156** 283, (2004)

“Precision Electroweak Data and Unification of Couplings in Warped Extra Dimensions”

M. Carena, A Delgado, E. Ponton, T.M.P. Tait and C.E.M. Wagner.
Phys. Rev. **D68**, 035010 (2003)

“Opaque Branes in Warped Backgrounds ”

M. Carena, E. Ponton, T.M.P. Tait, C.E.M Wagner
Phys. Rev. **D67**, 096006 (2003)

“Collider Probes of the MSSM Higgs Sector with Explicit CP Violation ”

M. Carena, J. R. Ellis, S. Mrenna, A. Pilaftsis, C.E.M. Wagner
Nucl. Phys. **B659**, 145 (2003)

“Higgs Boson Theory and Phenomenology ”

M. Carena and H. E. Haber.
Invited review article published in Prog. Part. and Nucl. Phys **50**, 63 (2003)

“Improved Results in Supersymmetric Electroweak Baryogenesis ”

M. Carena, M. Quiros, M. Seco, C.E.M. Wagner.
Nucl. Phys. **B650**, 24 (2003)

“Branes and Orbifolds are Opaque ”

M. Carena, T. P. Tait, C.E.M. Wagner.
Acta Phys.Polon. **B 33**, 2355 (2002). Special contribution by invited authors in honor of Stefan Pokorski’s 60th birthday.

“Top-squark searches at the Tevatron in models of low-energy supersymmetry breaking ”

M. Carena, D. Choudhury, R. A. Diaz, H. E. Logan , C. E.M. Wagner.
Phys. Rev. **D66**, 115010 (2002)

“The Snowmass Points and Slopes: Benchmarks for SUSY Searches ”

Allanach *et al.* (M. Carena)
Eur. Phys. J. **C25**, 113 (2002)

“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**, 601 (2003)

“Higgs-Boson Pole Masses in the MSSM with explicit Radiative CP violation ”

M. Carena, J. Ellis, A. Pilaftsis and C. Wagner.
Nucl. Phys. **B625**, 345 (2002)

“Distinguishing a MSSM Higgs boson from the SM Higgs Boson at a Linear Collider.”

M. Carena, H. E. Haber, H. E. Logan, S. Mrenna.
Phys. Rev. **D65**, 055005 (2002); Erratum-*ibid.* **D65** 099902 (2002)

“Brane Effects on Extra Dimensional Scenarios: A Tale of Two Gravitons. ”

M. Carena, A. Delgado, J. Lykken, S. Pokorski, M. Quiros and C.E.M. Wagner
Nucl. Phys **B609**, 499 (2001)

“Supersymmetric CP Violating Currents and Electroweak Baryogenesis. ”

M. Carena, J.M. Moreno, M. Quiros, M. Seco and C.E.M. Wagner
Nucl. Phys. **B599**, 158 (2001)

“ $b \rightarrow s \gamma$ and Supersymmetry with Large $\tan \beta$ ”

M. Carena, D. Garcia, U. Nierste and C.E.M. Wagner
Phys. Lett. **B499**, 141 (2001)

“CP-Violating Higgs Bosons in the Light of LEP2 ”

M. Carena, J. Ellis, A. Pilaftsis and C.E.M. Wagner
Phys. Lett. **B495**, 155 (2000)

“Do Electroweak Precision Data and Higgs Mass Constraints Rule Out a Scalar Bottom Quark with Mass of $O(5 \text{ GeV})$? ”

M. Carena, S. Heinemeyer, C.E.M. Wagner and G. Weiglein
Phys. Rev. Lett. **86**, 4463 (2001)

“Study of R-Parity Violation at a Muon-Proton Collider”

M. Carena, D. Choudhury, C. Quigg and S. Raychaudhuri.
Phys. Rev. **D62**, 095010 (2000)

“RG Invariant Sum Rule in a Generalization of Anomaly Mediated Supersymmetry Breaking Models”

M. Carena, K. Huitu and T. Kobayashi
Nucl. Phys. **B592**, 164 (2000)

“Renormalization Group Improved Effective Potential for the MSSM Higgs Sector with Explicit CP Violation ”

M. Carena, J. Ellis, A. Pilaftsis and C.E.M. Wagner
Nucl. Phys. **B586**, 92 (2000)

“Reconciling the Two Loop Diagrammatic and Effective Potential Computations of the Lightest CP-even Higgs Boson Mass in the MSSM”

M. Carena, H.E. Haber, S. Heinemeyer, W. Hollik, C.E.M. Wagner and G. Weiglein
Nucl. Phys. **B580**, 29 (2000)

“Effective Lagrangian for the $H^+\bar{t}b$ interaction in the MSSM and charged Higgs phenomenology”

M. Carena, D. Garcia, U. Nierste and C.E.M. Wagner
Nucl. Phys. **B577**, 88 (2000)

“The complementarity of LEP, the Tevatron and the LHC in the Search for a light MSSM Higgs Boson”

M. Carena, S. Mrenna and C.E.M. Wagner
Phys. Rev. **D62**, 055008 (2000)

“Neutrino Masses, Mixing Angles and the Unification of Couplings in the MSSM”

M. Carena, J. Ellis, S. Lola and C.E.M. Wagner
Eur. Phys. J. **C12**, 507 (2000)

“MSSM Higgs Boson Phenomenology at the Tevatron Collider ”

M. Carena, S. Mrenna and C.E.M. Wagner
Phys. Rev. **D60**, 075010 (1999)

“The Higgs Boson Mass as a Probe of the Minimal Supersymmetric Standard Model ”

M. Carena, P.H. Chankowski, S. Pokorski and C.E.M. Wagner
Phys. Lett. **B441**, 205 (1998)

“Manifestations of R -Parity Violation in Ultrahigh-Energy Neutrino Interactions”

M. Carena, D. Choudhury, S. Lola and C. Quigg
Phys. Rev. **D58**, 095003 (1998)

“Photon Signatures for low-energy Supersymmetry Breaking and Broken R-Parity”

M. Carena, S. Pokorski and C.E.M. Wagner

Phys. Lett. **B430**, 281 (1998)

“Electroweak Baryogenesis and Higgs and Stop Searches at LEP and the Tevatron”

M. Carena, M. Quiros and C.E.M. Wagner

Nucl. Phys. **B524**, 3 (1998)

“Supersymmetry and Charged Current Events at HERA”

M. Carena, D. Choudhury, S. Raychaudhuri and C.E.M. Wagner

Phys. Lett. **B414**, 92 (1997)

“Electroweak Baryogenesis and Low Energy Supersymmetry”.

M. Carena, M. Quiros, A. Riotto, I. Vilja and C.E.M. Wagner

Nucl. Phys. **B503**, 387 (1997)

“Four Jet Signal at LEP2 and Supersymmetry ”.

M. Carena, G. F. Giudice, S. Lola and C.E.M. Wagner

Phys. Lett. **B395**, 225 (1997)

“Bottom-Up Approach and Supersymmetry Breaking ”.

M. Carena, P. Chankowski, M. Olechowski, S. Pokorski and C.E.M. Wagner

Nucl. Phys. **B491**, 103 (1997)

“A global χ^2 Analysis of Electroweak Data in SO(10) SUSY GUTS”

T. Blazek, M. Carena, S. Raby and C.E.M. Wagner

Phys. Rev. **D56**, 6919 (1997)

“Constraints on Supersymmetric Models from the Muon Anomalous Magnetic Moment”.

M. Carena, G.F. Giudice and C.E.M. Wagner

Phys. Lett. **B390**, 234 (1997)

“Opening the Window for Electroweak Baryogenesis”

M. Carena, M. Quiros and C. Wagner

Phys. Lett. **B380**, 81 (1996)

“Four-Generation Low Energy Supersymmetry and the Top Quark Mass”

M. Carena, H. Haber and C.E.M. Wagner

Nucl. Phys. **B472**, 55 (1996)

“Light Higgsino Detection at LEP1.5”

A. Ambrosanio, M. Carena, B. Mele and C. Wagner

Phys. Lett. **B373**, 107 (1996)

“Effective Potential Methods and the Higgs Spectrum in the MSSM ”

M. Carena, M. Quirós and C. Wagner

Nucl. Phys. **B461**, 407 (1996)

“Analytical Expressions for Radiatively Corrected Higgs Masses and Couplings in the MSSM”

M. Carena, J.R. Espinosa, M. Quirós and C. Wagner

Phys. Lett. **B355**, 209 (1995)

“Fermion Masses, Mixing Angles and Supersymmetric SO(10) Unification”

M. Carena, S. Dimopoulos, S. Raby and C.E.M. Wagner

Phys. Rev. **D52**, 4133 (1995)

“Higgs and Supersymmetric Particle Signals at the Infrared Fixed Point of the Top Quark Mass”

M. Carena and C.E.M. Wagner

Nucl. Phys. **B452**, 45 (1995)

“Electroweak Symmetry Breaking and Bottom-Top Yukawa Unification”

M. Carena, M. Olechowski, S. Pokorski and C.E.M. Wagner

Nucl. Phys. **B426**, 269 (1994)

“Radiative Electroweak Symmetry Breaking and the Infrared Fixed Point of the Top Quark Mass”

M. Carena, M. Olechowski, S. Pokorski and C.E.M. Wagner

Nucl. Phys. **B419**, 213 (1994)

“Infrared Fixed Point Solution for the Top Quark Mass and the Unification of Couplings in the MSSM”

W.A. Bardeen, M. Carena, S. Pokorski and C.E.M. Wagner

Phys. Lett. **B320**, 110 (1994)

“The τ Neutrino as a Majorana Particle”

M. Carena, B. Lampe and C.E.M. Wagner

Phys. Lett. **B317**, 112 (1993)

“Light Gluinos and Unification of Couplings”

M. Carena, L. Clavelli, D. Matalliotakis, H.P. Nilles and C.E.M. Wagner
Phys. Lett. **B317**, 346 (1993)

“On the Finite Temperature Effective Potential in Scalar QED with N Flavors”

M. Carena and C.E.M. Wagner
Nucl. Phys. **B407**, 606 (1993)

“On the Unification of Couplings in the Minimal Supersymmetric Standard Model”

M. Carena, S. Pokorski and C.E.M. Wagner
Nucl. Phys. **B406**, 59 (1993)

“Renormalization-Group Analysis of the Higgs Sector in the Minimal Supersymmetric Standard Model”

M. Carena, K. Sasaki and C.E.M. Wagner
Nucl. Phys. **B381**, 66 (1992)

“Bound State Mass in Quenched QED”

M. Carena and C. E. M. Wagner
Phys. Lett. **B285**, 277 (1992)

“Dynamical Symmetry Breakdown and the Top Quark Mass in the Minimal Supersymmetric Standard Model”

W. A. Bardeen, M. Carena, T.E. Clark, K. Sasaki and C.E.M. Wagner
Nucl. Phys. **B369**, 33 (1992)

“A dynamically generated Chern-Simons Term in QED₃ with Fermion Self-Coupling.”

M. Carena, T.E. Clark and C.E.M. Wagner
Phys. Lett. **B259**, 128 (1991)

“The Phase Structure of QED₃ with Fermion Self-Coupling.”

M. Carena, T.E. Clark and C.E.M. Wagner
Nucl. Phys. **B356**, 117 (1991)

“Superconductivity and Supersymmetric QED in Three Dimensions.”

M. Carena, T.E. Clark and C.E.M. Wagner
Int. J. of Mod. Phys. **A6**, 217 (1991)

“Theta Vacuum in the Chiral Schwinger Model.”

M. Carena and C.E.M. Wagner
Int. J. of Mod. Phys. **A6**, 243 (1991)

“Parity Breakdown and Induced Fermion Number in the O(3) Nonlinear Sigma Model.”

M. Carena, S. Chaudhuri, T. ter Veldhuis and C.E.M. Wagner
Phys. Lett. **B252**, 101 (1990)

“Induced Fermion Number in the O(3) Nonlinear Sigma Model.”

M. Carena, S. Chaudhuri and C.E.M. Wagner
Phys. Rev. **D42**, 2120 (1990)

“Effective Lagrangian for Axion Emission from SN1987A”

M. Carena and R.D. Peccei
Phys. Rev. **D40**, 652 (1989)

“Fermion Zero Energy Modes in the Background of Adiabatically Evolving Scalar Fields”

M. Carena
Phys. Lett. **B217**, 135 (1989)

“The Adiabatic Method and the Sphaleron Charge”

M. Carena
Phys. Lett. **B211**, 117 (1988)

“Non-Abelian Theory for Massive Vector Bosons and Canonical Quantization”

M. Carena, L. Masperi and C.E.M. Wagner
Phys. Rev. **D37**, 560 (1988)

“Limits on the Top Quark Mass within the Frame of the Minimal Superstrings Inspired Model”

M. Carena and C.E.M. Wagner
Phys. Lett. **B198**, 205 (1987)

“Neutralino Production in $e^+ e^-$ Annihilation”

M. Carena and C.E.M. Wagner
Phys. Lett. **B195**, 599 (1987)

“Low Energy Supergravity: R Parity Breaking and the Top Quark Mass”

M. Carena and C.E.M. Wagner
Phys. Lett. **B186**, 361 (1987)

Reviews and Proceedings

“Tevatron for LHC report: Higgs ”

U. Aglietti et al. (M. Carena) FERMILAB-CONF-06-467-E-T, Dec 2006. 138pp.
e-Print Archive: hep-ph/0612172

“Tevatron-for-LHC Report: Preparations for Discoveries.”

V. Buescher, Marcela Carena, B. Dobrescu, S. Mrenna, D. Rainwater, M. Schmitt .
FERMILAB-CONF-06-284-T, Aug 2006.
e-Print Archive: hep-ph/0608322

“Tevatron-for-LHC Report: Preparations for Discoveries.”

V. Buescher, M. Carena, B. Dobrescu, S. Mrenna, D. Rainwater, M. Schmitt et al.
FERMILAB-CONF-06-284-T, Aug 2006. hep-ph/0608322

“Impact of tau polarization on the study of the MSSM charged Higgs bosons in top quark decays at the ILC”

E. Boos, V. Bunichev, M. Carena and C. Wagner
hep-ph/0507100

“Neutralino dark matter and electroweak baryogenesis in the MSSM ”

C. Balazs M. Carena and Wagner
Published in *Tsukuba 2004, SUSY 2004* 729-733

“The Coming Revolution in Particle Physics: Report of the Fermilab Long Range Planning Committee ”

Hugh Montgomery et al. (M. Carena)
FERMILAB-TM-2253, Jun 2004. 89pp.

“Physics at RUN II: Supersymmetry/Higgs Workshop ”

M. Carena, J. Lykken
FERMILAB-PUB-00-349, Jan 2003. 610pp. Physics at Run II report: available as hep-ph/0003154 (part 2), hep-ph/0008070 (part 3), and hep-ph/9906224 (part 4), and hep-ph/0006162 (part 5), and hep-ph/0010338 (part 6).

“Theoretical Developements”

S. Balatenychev et al (M. Carena)

Proceedings of the Workshop on Physics at TeV Colliders, Les Houches, France, 21 May - 1 Jun 2001. Published in *Les Houches 2001, Physics at TeV colliders* 4-33.

“Executive Summary of the Snowmass 2001 Working Group (P1) Electroweak Symmetry Breaking ”

M. Carena, D.W. Gerdes, Howard E. Haber, Andre S. Turcot, Peter M. Zerwas

Proceedings of APS / DPF / DPB Summer Study on the Future of Particle Physics (Snowmass 2001), Snowmass, CO, 30 June - 21 July 2001. hep-ph/0203229.

“The Higgs Working Group: Summary Report (2001) ”

L. Clavelli et al. (M. Carena)

Proceedings of Workshop on Physics at TeV Colliders, Les Houches, France, 21 May - 1 Jun 2001. Published in Les Houches 2001, Physics at TeV colliders hep-ph/0203056.

“Physics Opportunities at mu+mu- Higgs Factories ”

C. Blochinger et al. (M. Carena)

Report of the Higgs factory working group of the ECFA-CERN study on Neutrino Factory and Muon Storage Rings at CERN. hep-ph/0202199.

“Report of the Tevatron Higgs Working Group ”

M. Carena, J. Conway, H. Haber and J. Hobbs et. al.

To be published in the Proceedings of the Higgs and Supersymmetry Workshop on Physics at Run II of the Tevatron Collider.

Preprint hep-ph/0010338, October 2000

“Report of the SUGRA Working Group for run II of the Tevatron”

The SUGRA Working Group

To be published in the Proceedings of the Higgs and Supersymmetry Workshop on Physics at Run II of the Tevatron Collider

Preprint hep-ph/0003154 , March 2000

“Suggestions for Improved Benchmark Scenarios for Higgs Searches at LEP2”

M. Carena, S. Heinemeyer, G. Weiglein and C.E.M. Wagner

Contribution to the Workshop on New Theoretical Developments for Higgs Physics, Geneva, Switzerland, Oct. 1999

Preprint hep-ph/9912223.

“The Search for Supersymmetry at the Tevatron Collider”

M. Carena, R. Culbertson, S. Eno, H. Frisch and S. Mrenna

Review of Modern Physics 71, pp. 937-981 (1999);
shorter version, Published in **“Perspectives on Supersymmetry”**, ed. G.L. Kane, World Scientific, Singapore, pp. 204-234 (1998).

“Electroweak Baryogenesis and Higgs Physics”

M. Carena and C.E.M. Wagner

hep-ph/9704347, April 1997

Published in **“Perspectives on Higgs Physics II”**, ed. G.L. Kane, World Scientific, Singapore, pp 320-358 (1997).

“A global χ^2 Analysis of Electroweak Data (including Fermion Masses and Mixing Angles) in SO(10) SUSY GUTS”

T. Blazek, M. Carena, S. Raby and C.E.M. Wagner

Proceedings of the 4th International Conference on Supersymmetries in Physics (SUSY 96), May-June 1996, College Park, MD, U.S.A.

Nucl. Phys. Proc. Suppl. **A 52**, pp. 133–140 (1997).

“Searches for New Physics”

G.F. Giudice, M. Mangano, G. Ridolfi, R. Rückl et al. (M. Carena)

Vol. 1 of Physics at LEP2, G. Altarelli, T. Sjöstrand and F. Zwirner, eds., Report **CERN 96-01**, Geneva, Switzerland (1996).

“Higgs Physics at LEP2”

M. Carena, P. Zerwas et al.

Vol. 1 of Physics at LEP2, G. Altarelli, T. Sjöstrand and F. Zwirner, eds., Report **CERN 96-01**, Geneva, Switzerland (1996).

“Unification of Couplings in the MSSM”

M. Carena

Proceedings of the Brussels EPS-HEP 95 Conference, Aug.-Sep. 1995, Brussels, Belgium.

“Interim Report on the Physics Motivations for an Energy Upgrade of LEP2: Higgs Physics Section”

M. Carena, P. Zerwas, E. Gross, P. Janot and the LEP2 Higgs Working Group.

Preprint **CERN-TH/95-151**, **CERN-PPE 95-78**, June 1995.

“Soft Supersymmetry Breaking Parameters and Minimal SO(10) Unification”

M. Carena and C.E.M. Wagner

Proceedings of the 2nd IFT Workshop on “Yukawa Couplings and the Origins of Mass”, Gainesville FL, U.S.A., February 1994.

“The Infrared Fixed Point of the Top Quark Mass and its Implications within the MSSM”

M. Carena and C.E.M. Wagner

Proceedings of the 2nd IFT Workshop on “Yukawa Couplings and the Origins of Mass”, Gainesville FL, U.S.A., February 1994.

“The Top Quark Sector and Minimal Supersymmetric Grand Unification”

M. Carena

Proceedings of the International Europhysics Conference on High Energy Physics, Marseille, France, July 1993, eds. J. Carr and M. Perrottet, (Editions Frontières, Singapore, 1994), p. 495.

“Unification of Couplings and the Top Quark Sector in the MSSM”

M. Carena

Moriond Proceedings on “’93 Electroweak Interactions and Unified Theories”, Les Arcs, France, March 1993, ed. J. Trân Thanh Vân, (Editions Frontières, Singapore, 1993), p. 471.

“The Minimal Supersymmetric Standard Model with Dynamical Electroweak Symmetry Breakdown”

M. Carena

Proceedings on a Series of Seminars held at the Max-Planck-Institut für Physik: Lecture Notes in Physics - Phenomenological Aspects of Supersymmetry - Munich, FRG, 1991, eds. W. Hollik et al. (Springer-Verlag, Heidelberg, 1992), p. 302.

“Dynamical Symmetry Breaking and a Chern-Simons Term in QED_3 .”

M. Carena

Proceedings of the Vancouver Meeting: “Particles and Fields’91”, Vol. 2, Vancouver, B.C. Canada, 1991, eds. D. Axen et al., (World Scientific, Singapore, 1992) p. 843.

“Dynamical Breakdown of Z_2 and Parity Symmetries in QED_3 with Fermion Self-Couplings.” M. Carena

Proceedings of the International Conference on High Energy Physics “Beyond the Standard Model II”, Norman OK, U.S.A., 1990, eds. K. Milton et al. (World Scientific, Singapore, 1991) p. 345.

“Fermion Number Induced by Bosonic Topological Configurations”

M. Carena

Preprint: **DESY 89-084**, July 1989, 79pp.

Ph. D. Thesis.

