



Fermilab

Theoretical Physics Department Publications

Senior Staff Publications (2005-present published, or submitted to arXiv):

- 1) **Toward a NNLO calculation of the anti-B ---> X(s) gamma decay rate with a cut on photon energy. II. Two-loop result for the jet function.**

Thomas Becher (Fermilab) , Matthias Neubert (Cornell U., CIHEP) . CLNS-06-1954, FERMILAB-PUB-06-057-T, Mar 2006. 15pp.
e-Print Archive: [hep-ph/0603140](#)

- 2) **Toward a NNLO calculation of the anti-B ---> X(s) gamma decay rate with a cut on photon energy: I. Two-loop result for the soft function.**

Thomas Becher (Fermilab) , Matthias Neubert (Cornell U., CIHEP & Heidelberg U.) . CLNS-05-1948, FERMILAB-PUB-05-537-T, Dec 2005. 14pp.
Published in **Phys.Lett.B633:739-747,2006**
e-Print Archive: [hep-ph/0512208](#)

- 3) **Comment on form-factor shape and extraction of |V(ub)| from B ---> pi l nu.**

Thomas Becher (Fermilab) , Richard J. Hill (SLAC) . FERMILAB-PUB-05-385-T, SLAC-PUB-11468, Sep 2005. 14pp. Published in **Phys.Lett.B633:61-69,2006**
e-Print Archive: [hep-ph/0509090](#)

- 4) **One-loop matching of Delta S=2 four-quark operators with improved staggered fermions.** Thomas Becher (Fermilab) , Elvira Gamiz (Glasgow U.) , Kirill Melnikov (Hawaii U.) . FERMILAB-PUB-05-317-T, UH-511-1074-05, Jul 2005. 11pp.

Published in **Phys.Rev.D72:074506,2005**
e-Print Archive: [hep-lat/0507033](#)

- 5) **Factorization in B ---> V gamma decays.**

Thomas Becher (Fermilab) , Richard J. Hill (SLAC) , Matthias Neubert (Cornell U., LEPP) . FERMILAB-PUB-05-032-T, SLAC-PUB-11045, CLNS-05-1913, Mar 2005. 52pp.
Published in **Phys.Rev.D72:094017,2005**
e-Print Archive: [hep-ph/0503263](#)

- 6) **Implications of direct dark matter searches for MSSM Higgs searches at the Tevatron.**

[Marcela Carena](#), [Dan Hooper](#), [Peter Skands \(Fermilab\)](#) . FERMILAB-PUB-06-032-A, Mar 2006. 4pp. e-Print Archive: [hep-ph/0603180](#)

7) Constraints on B and Higgs physics in minimal low energy supersymmetric models.

[M. Carena \(Fermilab\)](#) , [A. Menon \(Argonne & Chicago U., EFI\)](#) , [R. Noriega-Papaqui \(Fermilab & Puebla U., Inst. Fis.\)](#) , [A. Szynkman \(Fermilab & Montreal U. & La Plata U.\)](#) , [C.E.M. Wagner \(Argonne & Chicago U., EFI\)](#) . ANL-HEP-PR-06-25, EFI-06-04, FERMILAB-PUB-06-044-T, e-Print Archive: [hep-ph/0603106](#)

8) Supersymmetry parameter analysis: SPA convention and project.

[J.A. Aguilar-Saavedra et al.](#) SLAC-PUB-11579, CERN-PH-TH-2005-232, DESY-05-242, FERMILAB-PUB-05-524-T, KEK-TH-1054, Nov 2005. 19pp.

Submitted to Eur.Phys.C

e-Print Archive: [hep-ph/0511344](#)

9) Revamped braneworld gravity.

[Ruoyu Bao \(Chicago U., EFI & Chicago U.\)](#) , [Marcela Carena \(Fermilab\)](#) , [Joseph Lykken \(Chicago U., EFI & Chicago U. & Fermilab\)](#) , [Minjoon Park \(Chicago U., EFI & Chicago U.\)](#) , [Jose Santiago \(Fermilab\)](#) . FERMILAB-PUB-05-510-T, EFI-05-20, Nov 2005. 44pp.

Published in [Phys.Rev.D73:064026,2006](#)

e-Print Archive: [hep-th/0511266](#)

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

[M. Carena \(Fermilab\)](#) , [S. Heinemeyer \(CERN\)](#) , [C.E.M. Wagner \(Argonne & Chicago U., EFI\)](#) , [G. Weiglein \(Durham U., IPPP\)](#) . ANL-HEP-PR-05-109, CERN-PH-TH-2005-158, DCPT-05-128, EFI-05-19, FERMILAB-PUB-05-370-T, IPPP-05-64, Nov 2005. 30pp.

Published in [Eur.Phys.J.C45:797-814,2006](#)

e-Print Archive: [hep-ph/0511023](#)

12) Analyzing the scalar top co-annihilation region at the ILC.

[M. Carena \(Fermilab\)](#) , [A. Finch \(Lancaster U.\)](#) , [A. Freitas](#) , [C. Milstene \(Fermilab\)](#) , [H. Nowak \(DESY, Zeuthen\)](#) , [A. Sopczak \(Lancaster U.\)](#) . FERMILAB-PUB-05-362-E-T, Aug 2005. 32pp.

Published in [Phys.Rev.D72:115008,2005](#)

e-Print Archive: [hep-ph/0508152](#)

13) The Interval approach to braneworld gravity.

[Marcela Carena \(Fermilab\)](#) , [Joseph D. Lykken \(Fermilab & Chicago U., EFI\)](#) , [Minjoon Park \(Chicago U., EFI\)](#) . FERMILAB-PUB-05-215-T, EFI-05-02, Jun 2005. 45pp.

Published in [Phys.Rev.D72:084017,2005](#)

e-Print Archive: [hep-ph/0506305](#)

14) Anomaly-free sets of fermions.

[Puneet Batra \(Argonne\)](#) , [Bogdan A. Dobrescu \(Fermilab\)](#) , [David Spivak \(UC, Berkeley, Math. Dept.\)](#) . ANL-HEP-PR-05-106, FERMILAB-PUB-05-451-T, Oct 2005. 22pp.

e-Print Archive: [hep-ph/0510181](#)

- 15) **Six-dimensional gauge theory on the chiral square.**
[Gustavo Burdman \(Sao Paulo U.\)](#) , [Bogdan A. Dobrescu \(Fermilab\)](#) , [Eduardo Ponton \(Columbia U.\)](#) . FERMILAB-PUB-05-261-T, Jun 2005. 25pp.
 Published in **JHEP 0602:033,2006**
 e-Print Archive: [hep-ph/0506334](#)
- 16) **New states above charm threshold.**
[Estia J. Eichten \(Fermilab\)](#) , [Kenneth Lane \(Boston U.\)](#) , [Chris Quigg \(Fermilab\)](#) .
 FERMILAB-PUB-05-380-T, BUHEP-05-18, Nov 2005. 12pp.
 Published in **Phys.Rev.D73:014014,2006**
 e-Print Archive: [hep-ph/0511179](#)
- 17) **The One-loop amplitude for six-gluon scattering.**
[R.K. Ellis \(Fermilab & CERN\)](#) , [W.T. Giele \(Fermilab\)](#) , [Giulia Zanderighi \(CERN\)](#) .
 CERN-PH-TH-2006-032, FERMILAB-PUB-06-031-T, Feb 2006. 13pp.
 e-Print Archive: [hep-ph/0602185](#)
- 18) **Production of a Z boson and two jets with one heavy-quark tag.**
[J. Campbell \(CERN\)](#) , [R.K. Ellis \(CERN & Fermilab\)](#) , [F. Maltoni \(CERN & Louvain U.\)](#) ,
[S. Willenbrock \(Illinois U., Urbana\)](#) . CERN-PH-TH-2005-064, FERMILAB-PUB-05-487-T, ILL-TH-05-04, Oct 2005. 11pp.
 Published in **Phys.Rev.D73:054007,2006**
 e-Print Archive: [hep-ph/0510362](#)
- 19) **Semi-numerical evaluation of one-loop corrections.**
[R.K. Ellis, W.T. Giele, G. Zanderighi \(Fermilab\)](#) . FERMILAB-PUB-05-354-T, Aug 2005. 33pp.
 Published in **Phys.Rev.D73:014027,2006**
 e-Print Archive: [hep-ph/0508308](#)
- 20) **Virtual QCD corrections to Higgs boson plus four parton processes.**
[R.K. Ellis, W.T. Giele, G. Zanderighi \(Fermilab\)](#) . FERMILAB-PUB-05-238-T, Jun 2005. 21pp.
 Published in **Phys.Rev.D72:054018,2005**
 e-Print Archive: [hep-ph/0506196](#)
- 21) **Exact equivalence of the D=4 gauged Wess-Zumino-Witten term and the D=5 Yang-Mills Chern-Simons term.**
[Christopher T. Hill \(Fermilab\)](#) . FERMILAB-PUB-06-046-T, Mar 2006. 25pp.
 e-Print Archive: [hep-th/0603060](#)
- 22) **Lecture notes for massless spinor and massive spinor triangle diagrams.**
[Christopher T. Hill \(Fermilab\)](#) . FERMILAB-TM-2341-T, Jan 2006. 17pp.
 These are technical details of computations that accompany hep-th/0601154, but may be of more general utility. e-Print Archive: [hep-th/0601155](#)
- 23) **Anomalies, Chern-Simons terms and chiral delocalization in extra dimensions.**
[Christopher T. Hill \(Fermilab\)](#) . FERMILAB-PUB-06-010-T, Jan 2006. 46pp.
 Published in **Phys.Rev.D73:085001,2006**
 e-Print Archive: [hep-th/0601154](#)

- 24) **Neutrino mass hierarchy, vacuum oscillations, and vanishing $|U(e3)|$.**
[Andre de Gouvea \(Northwestern U. & Fermilab\)](#), [James Jenkins \(Northwestern U.\)](#),
[Boris Kayser \(Fermilab\)](#). FERMILAB-PUB-05-029-T, NUHEP-TH-05-03, Mar 2005.
 15pp.
 Published in **Phys.Rev.D71:113009,2005**
 e-Print Archive: [hep-ph/0503079](#)
- 25) **Charmed meson decay constants in three-flavor lattice QCD.**
[C. Aubin et al.](#) FERMILAB-PUB-05-257-T, Jun 2005. 4pp.
 Published in **Phys.Rev.Lett.95:122002,2005**
 e-Print Archive: [hep-lat/0506030](#)
- 26) **Minimal Noncanonical Cosmologies.**
[Gabriela Barenboim \(Valencia U.\)](#), [Joseph D. Lykken \(Fermilab\)](#). FERMILAB-PUB-06-066-T, FTUV-06-0329, Apr 2006. 20pp.
 e-Print Archive: [astro-ph/0604528](#)
- 27) **Twenty-five questions for string theorists.**
[Pierre Binetruy \(Orsay, LPT\)](#), [G.L. Kane \(Michigan U., MCTP\)](#), [Joseph D. Lykken \(Fermilab\)](#), [Brent D. Nelson \(Pennsylvania U.\)](#). FERMILAB-PUB-05-411-T, UPR-1133-T, Sep 2005. 31pp.
 Published in **J.Phys.G32:129-150,2006**
 e-Print Archive: [hep-th/0509157](#)
- 28) **Randall-Sundrum membrane model with 7D anti-de Sitter space.**
[Ruoyu Bao \(Chicago U., EFI & Chicago U.\)](#), [Joseph D. Lykken \(Chicago U., EFI & Chicago U. & Fermilab\)](#). FERMILAB-PUB-05-381-T, EFI-05-12, Sep 2005.
 18pp.
 e-Print Archive: [hep-ph/0509137](#)
- 29) **Slinky inflation.**
[Gabriela Barenboim \(Valencia U.\)](#), [Joseph D. Lykken \(Fermilab\)](#). FERMILAB-PUB-05-039-T, Apr 2005. 5pp.
 Published in **Phys.Lett.B633:453-457,2006**
 e-Print Archive: [astro-ph/0504090](#)
- 30) **Physics potential of the Fermilab NuMI beamline.**
[Olga Mena](#), [Stephen J. Parke \(Fermilab\)](#). FERMILAB-PUB-05-196-T, May 2005. 22pp.
 Published in **Phys.Rev.D72:053003,2005**
 e-Print Archive: [hep-ph/0505202](#)
- 31) **Another possible way to determine the neutrino mass hierarchy.**
[Hiroshi Nunokawa \(Rio de Janeiro, Pont. U. Catol.\)](#), [Stephen J. Parke \(Fermilab\)](#),
[Renata Zukanovich Funchal \(Sao Paulo U.\)](#). FERMILAB-PUB-05-041-T, Mar 2005.
 12pp.
 Published in **Phys.Rev.D72:013009,2005**
 e-Print Archive: [hep-ph/0503283](#)

32) Neutrino Coannihilation on Dark-Matter Relics?

[Gabriela Barenboim \(Valencia U.\)](#) , [Olga Mena Requejo](#) , [Chris Quigg \(Fermilab\)](#) .

FERMILAB-PUB-06-050-T, Apr 2006. 5pp.

e-Print Archive: [astro-ph/0604215](#)

33) Observational constraints on undulant cosmologies.

[Gabriela Barenboim \(Valencia U.\)](#) , [Olga Mena Requejo](#) , [Chris Quigg \(Fermilab\)](#) .

FERMILAB-PUB-05-379-T, Oct 2005. 19pp.

Submitted to JCAP e-Print Archive: [astro-ph/0510178](#)

34) Resonances from two universal extra dimensions.

[Gustavo Burdman \(Sao Paulo U.\)](#) , [Bogdan A. Dobrescu \(Fermilab\)](#) , [Eduardo Ponton \(Columbia U.\)](#) . FERMILAB-PUB-06-009-T, CU-TP-1143, Jan 2006. 21pp.

[Fermilab Today article](#). [hep-ph/0601186](#)

Conference Proceedings

1) Neutralino dark matter and electroweak baryogenesis.

[C. Balazs \(Argonne\)](#) , [M. Carena \(Fermilab\)](#) , [A. Menon \(Argonne & Chicago U., EFI\)](#) ,

[D.E. Morrissey \(Michigan U.\)](#) , [C.E.M. Wagner \(Argonne & Chicago U., EFI\)](#) .

SNOWMASS-2005-ALCPG0503, Aug 2005.

In the Proceedings of the 2005 International Linear Collider Physics and Detector Workshop and 2nd ILC Accelerator Workshop, Snowmass, Colorado, 14-27 Aug 2005.

2) Overview of Electroweak Baryogenesis.

[C. Balazs \(Argonne\)](#) , [M. Carena \(Fermilab\)](#) , [A. Menon \(Argonne & Chicago U., EFI\)](#) ,

[D.E. Morrissey \(Michigan U.\)](#) , [C.E.M. Wagner \(Argonne & Chicago U., EFI\)](#) .

SNOWMASS-2005-ALCPG0333, Aug 2005. 4pp.

In the Proceedings of the 2005 International Linear Collider Physics and Detector Workshop and 2nd ILC Accelerator Workshop, Snowmass, Colorado, 14-27 Aug 2005.

3) Les houches physics at TeV colliders 2005 beyond the standard model working group: Summary report.

[M. Carena, Bogdan Dobrescu, et al.](#) SLAC-PUB-11770, Feb 2006. 269pp.

Contributed to Les Houches Workshop on Physics at TeV Colliders, Les Houches, France, 2-20 May 2005.

e-Print Archive: [hep-ph/0602198](#)

4) The light stop quark with small stop-neutralino difference in the MSSM.

By Linear Collider Collaboration ([M. Carena, et al.](#)). FERMILAB-FN-0781-E,

SNOWMASS-2005-ALCPG0317, Dec 2005. 5pp.

Presented at 2005 International Linear Collider Physics and Detector Workshop and 2nd ILC Accelerator Workshop, Snowmass, Colorado, 14-27 Aug 2005.

5) Toward high precision higgs-boson measurements at the international linear e+ e- collider.

M. Carena, [et al.](#) FERMILAB-CONF-05-541-T, CERN-PH-TH-2005-228, SNOWMASS-2005-ALCPG0214, SNOWMASS-2005-PLEN0044, Nov 2005. 128pp. Presented at 2005 International Linear Collider Physics and Detector Workshop and 2nd ILC Accelerator Workshop, Snowmass, Colorado, 14-27 Aug 2005.
e-Print Archive: [hep-ph/0511332](#)

6) **Analysis of stops with small stop-neutralino mass difference at a LC.**
[C. Milstene](#), [M. Carena](#), [A. Freitas](#) ([Fermilab](#)) , [A. Finch](#), [A. Sopczak](#) ([Lancaster U.](#)) , [H. Nowak](#) ([DESY, Zeuthen](#)) . FERMILAB-CONF-05-363-E-T, Aug 2005. 6pp.
To appear in the proceedings of 2005 International Linear Collider Workshop (LCWS 2005), Stanford, California, 18-22 Mar 2005.
e-Print Archive: [hep-ph/0508154](#)

7) **Impact of tau polarization on the study of the MSSM charged Higgs bosons in top quark decays at the ILC.**
[E. Boos](#), [V. Bunichev](#) ([SINP, Moscow](#)) , [M. Carena](#) ([Fermilab](#)) , [C.E.M. Wagner](#) ([Argonne & Chicago U., EFI](#)) . ANL-HEP-CP-05-60, FERMILAB-CONF-05-265-T, EFI-05-06, Jul 2005. 6pp.
Presented at 2005 International Linear Collider Workshop (LCWS 2005), Stanford, California, 18-22 Mar 2005.
e-Print Archive: [hep-ph/0507100](#)

8) **Lattice field theory. Proceedings, 22nd International Symposium, Lattice 2004, Batavia, USA, June 21-26, 2004.**
[G. Bodwin](#), ([ed.](#)), [D.K. Sinclair](#), ([ed.](#)) ([Argonne](#)) , [E. Eichten](#), ([ed.](#)), [D. Holmgren](#), ([ed.](#)), [Andreas S. Kronfeld](#), ([ed.](#)), [P. Mackenzie](#), ([ed.](#)), [M. Okamoto](#), ([ed.](#)), [J. Simone](#), ([ed.](#)) ([Fermilab](#)) , [Aida X. El-Khadra](#), ([ed.](#)) ([Illinois U., Urbana](#)) . 2005. 896pp.
Prepared for 22nd International Symposium on Lattice Field Theory (Lattice 2004), Batavia, Illinois, 21-26 Jun 2004.
Published in Nucl. Phys. B, Proc. Suppl. 140 (2005) 1-896

9) **New developments in heavy-light systems.**
[E. Eichten](#) ([Fermilab](#)) . 2005. 5pp.
Prepared for 6th International Conference on Hyperons, Charm and Beauty Hadrons (BEACH 2004), Chicago, Illinois, 27 Jun - 3 Jul 2004.
Published in [Nucl.Phys.Proc.Suppl.142:242-246,2005](#) Also in *Chicago 2004, Hyperons, charm and beauty hadrons* 242-246

10) **What fraction of boron-8 solar neutrinos arrive at the earth as a nu(2) mass eigenstate?**
[Hiroshi Nunokawa](#) ([Rio de Janeiro, Pont. U. Catol.](#)) , [Stephen J. Parke](#) ([Fermilab](#)) , [Renata Zukanovich Funchal](#) ([Sao Paulo U.](#)) . FERMILAB-PUB-05-049-T, Jan 2006. 23pp. Dedicated to the memory of John Bahcall who championed solar neutrinos for many lonely years. [hep-ph/0601198](#)

11) **Neutrino intrinsic properties: The Neutrino-antineutrino relation.**
[Boris Kayser](#) ([Fermilab](#)) . Apr 2005. 9pp.
Contributed to Nobel Symposium 2004: Neutrino Physics, Haga Slott, Enkoping, Sweden, 19-24 Aug 2004.

Published in **Phys.Scripta T121:156-160,2005**
e-Print Archive: [hep-ph/0504052](#)

12) **B and D meson semileptonic decays in three-flavor lattice QCD.**
By Fermilab Lattice, MILC and HPQCD Collaborations ([P.B. Mackenzie et al.](#)). 2005.
6pp.
Prepared for 23rd International Symposium on Lattice Field Field: Lattice 2005, Trinity
College, Dublin, Ireland, 25-30 Jul 2005.
Published in **PoS LAT2005:207,2005**

13) **Onium masses with three flavors of dynamical quarks.**
[Steven Gottlieb, L. Levkova \(Indiana U.\) , M. Di Pierro \(DePaul U.\) , A. El-Khadra, D. Menscher \(Illinois U., Urbana\) , A.S. Kronfeld, P.B. Mackenzie, J. Simone \(Fermilab\)](#). Oct 2005. 6pp.
Presented at 23rd International Symposium on Lattice Field Field: Lattice 2005, Trinity
College, Dublin, Ireland, 25-30 Jul 2005.
Published in **PoS LAT2005:203,2005**
e-Print Archive: [hep-lat/0510072](#)

14) **Predictions from lattice QCD.**
By Fermilab Lattice and MILC Collaboration and HPQCD Collaboration ([A.S. Kronfeld et al.](#)). FERMILAB-CONF-05-428-T, Sep 2005. 6pp.
Talk given at International Conference on QCD and Hadronic Physics, Beijing, China,
16-20 Jun 2005; 23rd International Symposium on Lattice Field Field: Lattice 2005,
Trinity College, Dublin, Ireland, 25-30 Jul 2005.
Published in **PoS LAT2005:206,2005, Int.J.Mod.Phys.A21:713-719,2006**
e-Print Archive: [hep-lat/0509169](#)

15) **Phenomenology beyond the standard model.**
[Joseph D. Lykken \(Fermilab\)](#) . FERMILAB-CONF-05-038-T, Mar 2005. 23pp.
Published in **Czech.J.Phys.55:B577-B598,2005**
e-Print Archive: [hep-ph/0503148](#)

16) **The fundamental constants of nature from lattice gauge theory simulations.**
[Paul B. Mackenzie \(Fermilab\)](#) . FERMILAB-CONF-05-489-T, 2005. 10pp.
Prepared for Scientific Discovery through Advanced Computing (SciDAC 2005),
San Francisco, California, 26-30 Jun 2005.
Published in **J.Phys.Conf.Ser.16:140-149,2005**

17) **Why do a precision measurement of delta (m(atm)**2) in the nu/e (anti-nu/e) disappearance channel?**
[H. Nunokawa \(Rio de Janeiro, Pont. U. Catol.\) , S. Parke \(Fermilab\) , R. Zukanovich Funchal \(Sao Paulo U.\)](#) . 2005. 4pp.
Prepared for EPS International Europhysics Conference on High Energy Physics (HEP-EPS 2005), Lisbon, Portugal, 21-27 Jul 2005.
Published in **PoS HEP2005:183,2006**

18) Theta(13).

[Stephen Parke](#) ([Fermilab](#)) . FERMILAB-CONF-05-603-T, Oct 2005. 32pp.

Presented at Particles and Nuclei International Conference (PANIC 05), Santa Fe, New Mexico, 24-28 Oct 2005.

19) On the mass eigenstate purity of Boron-8 solar neutrinos.

[Stephen J. Parke](#) ([Fermilab](#)) , [Hiroshi Nunokawa](#) ([Rio de Janeiro, Pont. U. Catol.](#)) ,

[Renata Zukanovich Funchal](#) ([Sao Paulo U.](#)) . FERMILAB-CONF-05-580-T, Jan 2006.

3pp. To appear in the proceedings of Particles and Nuclei International Conference (PANIC 05), Santa Fe, New Mexico, 24-28 Oct 2005.

e-Print Archive: [hep-ph/0601208](#)

20) Physics at a Fermilab proton driver.

[M.G. Albrow](#) *et al.* FERMILAB-FN-0778-AD-E, Sep 2005. 54pp.

e-Print Archive: [hep-ex/0509019](#)

21) Extremely high energy cosmic neutrinos and relic neutrinos.

[Chris Quigg](#) ([Fermilab & CERN](#)) . FERMILAB-CONF-06-029-T, Mar 2006. 19pp.

Invited talk at 3rd International Workshop on NO-VE: Neutrino Oscillations in Venice: 50 Years after the Neutrino Experimental Discovery, Venice, Italy, 7-10 Feb 2006.

e-Print Archive: [astro-ph/0603372](#)

22) Comunicare fisica all'Americana.

[Chris Quigg](#) ([Fermilab](#)) . FERMILAB-CONF-05-490-T, Nov 2005. 18pp.

Invited talk at Communicating Physics - Comunicare Fisica, Frascati, Italy, 24-27 Oct 2005. [physics/0511254](#)

23) Hadronic physics and exotics.

[Chris Quigg](#) ([Fermilab](#)) . FERMILAB-CONF-05-356-T, Sep 2005. 15pp.

Plenary talk at EPS International Europhysics Conference on High Energy Physics (HEP-EPS 2005), Lisbon, Portugal, 21-27 Jul 2005.

Published in **PoS HEP2005:400,2006** [hep-ph/0509332](#)

24) The Double simplex.

[Chris Quigg](#) ([Fermilab](#)) . FERMILAB-CONF-05-371-T, Sep 2005. 20pp.

Contributed to GUSTAVOFEST: Symposium in Honor of Gustavo C. Branco: CP Violation and the Flavor Puzzle, Lisbon, Portugal, 19-20 Jul 2005.

Submitted to Acta Phys.Polon.B

e-Print Archive: [hep-ph/0509037](#)

25) Revolutions and revelations.

[Chris Quigg](#) ([Fermilab](#)) . FERMILAB-CONF-05-018-T, Feb 2005. 17pp.

Talk given at Conference on Physics at LHC, Vienna, Austria, 13-17 Jul 2004.

Published in **Czech.J.Phys.55:B769-B785,2005**

e-Print Archive: [hep-ph/0502252](#)

26) Nature's Greatest Puzzles.

[Chris Quigg](#) ([Fermilab](#)) . FERMILAB-CONF-04-163-T, SSI-2004-L001, Feb 2005.

17pp. Opening lecture presented at the 32nd SLAC Summer Institute on Particle

Physics (SSI 2004): Natures Greatest Puzzles, Menlo Park, California, 2-13 Aug 2004. Published in **Conf C040802:L001,2004** [hep-ph/0502070](#)

27) Physics at a Fermilab proton driver.

Bogdan Dobrescu, *et al.* FERMILAB-FN-0778-AD-E, Sep 2005. 54pp.
e-Print Archive: [hep-ex/0509019](#)

28) Conjecture on the physical implications of the scale anomaly.

Christopher T. Hill (Fermilab) . FERMILAB-CONF-05-482-T, Oct 2005. 26pp.
Invited talk delivered at the Santa Fe institute on the occasion of the celebration of the
75th birthday of Murray Gell-Mann.
e-Print Archive: [hep-th/0510177](#)

29) Neutrino physics.

Boris Kayser (Fermilab) . SSI-2004-L004, FERMILAB-PUB-05-236-T, Jun 2005. 21pp.
Lectures given at 32nd SLAC Summer Institute on Particle Physics (SSI 2004): Natures
Greatest Puzzles, Menlo Park, California, 2-13 Aug 2004.
Published in **eConf C040802:L004,2004**
e-Print Archive: [hep-ph/0506165](#)

30) Theory of neutrinos: A White paper.

Boris Kayser, *et al.* FERMILAB-TM-2342-T, SLAC-PUB-11622, Oct 2005.
143pp. e-Print Archive: [hep-ph/0510213](#)

Research Associate Publications

(2005-present published, or submitted to arXiv; does not count new RA arrivals,
and does count Fall departures; does not count previous collaborative papers with
senior theory group members):

1) Determining sneutrino masses and physical implications.

A. Freitas (Fermilab) , W. Porod (Valencia U. & Zurich U.) , P.M. Zerwas
(DESY) . DESY-05-123, FERMILAB-PUB-05-319-T, IFIC-05-26, ZU-TH-09-
05, Sep 2005. 20pp.
Published in **Phys.Rev.D72:115002,2005**
e-Print Archive: [hep-ph/0509056](#)

2) Reconstructing supersymmetry at ILC/LHC.

G.A. Blair (DESY & Royal Holloway, U. of London) , A. Freitas (Zurich U.) ,
H.-U. Martyn (Aachen, Tech. Hochsch.) , G. Polesello (CERN) , W. Porod
(Valencia U., IFIC) , P.M. Zerwas (DESY) . DESY-05-240, IFIC-05-64, ZH-TH-
25-05, Dec 2005. 11pp.

To appear in the proceedings of 29th International Conference of Theoretical

Physics: Matter to the Deepest: Recent Developments in Physics of Fundamental Interactions, Ustron, Poland, 8-14 Sep 2005.

Published in **Acta Phys.Polon.B36:3445-3462,2005**

e-Print Archive: [hep-ph/0512084](#)

3) Charm quark contribution to $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ at next-to-next-to-leading order.

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