

Neil D. Christensen

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Professional Positions

- LHC-TI Fellow and Postdoctoral Research Associate
University of Wisconsin - Madison, 2009-Present
- Postdoctoral Research Associate
Michigan State University, 2006-2009

Education

Ph.D. Theoretical Physics
Stony Brook University, May 2006
Thesis: Studies of Dynamical Electroweak Symmetry Breaking
Advisor: Prof. Robert Shrock

B.A. Mathematics
University of Utah, June 2000

Summer Schools

- Physics in $D \geq 4$
Theoretical Advanced Study Institute (TASI), University of Colorado at Boulder,
June - July, 2004.

Honors and Awards

- LHC-TI Fellowship, National Science Foundation, 2009.
- NSF TASI Grant, National Science Foundation, June 2004.
- Peter B. Kahn Travel Fellowship, Department of Physics and Astronomy, Stony Brook University, May 2004.

- H.B. Silsbee Award of Excellence, Department of Physics and Astronomy, Stony Brook University, May 2002.
- Department of Education GAANN Fellow, Department of Physics and Astronomy, Stony Brook University, Fall 2000 – Spring 2002.
- Highest Score on the Qualifying Exam, Department of Physics and Astronomy, Stony Brook University, January 2001.
- Outstanding Undergraduate Student Award, Department of Physics and Astronomy, University of Utah, April 2000.
- Kennecott Scholar, Department of Physics and Astronomy, University of Utah, Fall 1998 – Spring 2000.
- Biesele Award, Department of Mathematics, University of Utah, May 2000.

Publications

1. “W(L) W(L) Scattering in Higgsless Models: Identifying Better Effective Theories”, Alexander S. Belyaev, R. Sekhar Chivukula, Neil D. Christensen, Hong-Jian He, Masafumi Kurachi, Elizabeth H. Simmons, Masaharu Tanabashi, Physics Review **D 80**, 055022 (2009).
2. “The Top Triangle Moose: Combining Higgsless and Topcolor Mechanisms for Mass Generation”, R. Sekhar Chivukula, Neil D. Christensen, Baradhwaj Coleppa, Elizabeth H. Simmons, Physics Review **D 80**, 035011 (2009).
3. “A Comprehensive approach to new physics simulations”, Neil D. Christensen, Priscila de Aquino, Celine Degrande, Claude Duhr, Benjamin Fuks, Michel Herquet, Fabio Maltoni, Steffen Schumann, arXiv:0906.2474.
4. “ $Z \rightarrow b$ anti- b and Chiral Currents in Higgsless Models”, Tomohiro Abe, R. Sekhar Chivukula, Neil D. Christensen, Ken Hsieh, Shinya Matsuzaki, Elizabeth H. Simmons, Masaharu Tanabashi, Physics Review **D 79**, 075016 (2009).
5. “FeynRules -Feynman rules made easy”, Neil D. Christensen and Claude Duhr, Computer Physics Communication **180**, 1614-1641 (2009).
6. “Low-energy effective theory, unitarity, and non-decoupling behavior in a model with heavy Higgs-triplet fields”, R. Sekhar Chivukula, Neil D. Christensen, Elizabeth H. Simmons, Physics Review **D 77**, 035001 (2008).
7. “CERN LHC Signatures of New Gauge Bosons in the Minimal Higgsless Model”, Hong-Jian He, Yu-Ping Kuang, Yong-Hui Qi, Bin Zhang, Alexander Belyaev, R. Sekhar Chivukula, Neil D. Christensen, Alexander Pukhov and Elizabeth H. Simmons, Physics Review **D 78**, 031701 (2008).

8. “Unitarity and Bounds on the Scale of Fermion Mass Generation”, R. Sekhar Chivukula, Neil D. Christensen, Baradhwaj Coleppa and Elizabeth H. Simmons, *Physics Review D* **75**, 053018 (2007).
9. “Extended technicolor models with two ETC groups”, Neil D. Christensen and Robert Shrock, *Physics Review D* **74**, 015004 (2006).
10. “Technifermion Representations and Precision Electroweak Constraints”, Neil D. Christensen and Robert Shrock, *Physics Letters B* **632**, 92 (2006).
11. “On the Unification of Gauge Symmetries in Theories with Dynamical Symmetry Breaking”, Neil D. Christensen and Robert Shrock, *Physical Review D* **72**, 035013 (2005).
12. “Implications of Dynamical Generation of Standard-Model Fermion Masses”, Neil D. Christensen and Robert Shrock, *Physical Review Letters* **94**, 241801 (2005).
13. “Flavor-Changing Processes in Extended Technicolor”, Thomas Appelquist, Neil D. Christensen, Maurizio Piai and Robert Shrock, *Physical Review D* **70**, 903010 (2004).

Works in Preparation

- “LHC Collider Phenomenology of the 3-Site Model”, Hong-Jian He, Yu-Ping Kuang, Yong-Hui Qi, Bin Zhang, Alexander Belyaev, R. Sekhar Chivukula, Neil D. Christensen and Elizabeth H. Simmons.
- “Antlers at Linear Colliders”, Neil D. Christensen, Tao Han, Jeonghyeon Song.
- “New Features of CalcHEP”, Alexander S. Belyaev, Neil D. Christensen and Alexander S. Pukhov.

Talks

- “BSM with FeynRules” (Tutorial),
 - LHC-TI meeting, Fermilab, IL, October 29, 2009.
- “Beyond the 3-Site Higgsless Model”,
 - PHENO 09: LHC Alive! Conference, University of Wisconsin - Madison, May 11, 2009.
- “FeynRules & CalcHEP”

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- Monte Carlo for Beyond the Standard Model (MC4BSM) 09 Conference, University of California at San Diego, April 3, 2009.
 - “Unitarity in Higgsless Theories”
 - High Energy Physics Theory Seminar, Southampton University, England, July 2008.
 - Fun with New Physics Workshop, Center for Particle Physics and Phenomenology (CP3), Universite Catholique de Louvain, Belgium, July 2008.
 - “BSM in FeynRules”
 - Tools 08: For the New Physics and its Background, Max-Planck-Institute Fur Physik, Munich, Germany, June 2008.
 - “Batch Interface and Parallelization in CalcHEP”
 - Tools 08: For the New Physics and its Background, Max-Planck-Institute Fur Physik, Munich, Germany, June 2008.
 - “Implementation of New Models with FeynRules”
 - 2008 Phenomenology Symposium (PHENO): LHC Turn On, University of Wisconsin-Madison, April 2008.
 - “FeynRules”
 - Fermilab Theory Seminar, Fermilab, IL, December 18, 2009.
 - High Energy Physics Seminar, Michigan State University, MI, January 2008.
 - “The Minimal Higgsless Model (from the beginning)”
 - New Tools for Model Building Workshop, Center for Particle Physics and Phenomenology (CP3), Universite Catholique de Louvain, Belgium, January 2008.
 - “Some Collider Phenomenology of the Minimal Higgsless Model”
 - LHC New Physics Signatures Workshop, The Michigan Center for Theoretical Physics, University of Michigan, MI, January 2008.
 - “Unitarity and Bounds on the Scale of Fermion Mass Generation in Deconstructed Higgsless Models”
 - Higgsless Electroweak Symmetry Breaking in the LHC Era, Radcliffe Institute for Advanced Study, Cambridge, MA, July 2007.
 - Fermilab High Energy Physics Theory Seminar, Fermilab, IL, June 2007.

- “Unitarity and Bounds on the Scale of Fermion Mass Generation in Deconstructed Higgsless Models”
 - 2007 Phenomenology Symposium (PHENO): Prelude to the LHC, University of Wisconsin-Madison, May 2007.
- “An Implementation of the Three Site Model in CalcHEP”
 - Monte Carlo Tools for Beyond the Standard Model (mc4bsm), Princeton University, NJ, March 2007.
- “Unitarity Constraint, LEP Bound and ILC Phenomenology of the 3-site Model”
 - Center for High Energy Physics, Tsinghua University, Beijing, China, December 2006.
- “Studies of Dynamical Electroweak Symmetry Breaking”
 - High Energy Physics Theory Seminar, Yale University, CT, December 2005.
 - High Energy Physics Theory Seminar, Boston University, MA, December 2005.
 - High Energy Physics Seminar, Michigan State University, MI, December 2005.
 - Yang Institute for Theoretical Physics Seminar, Stony Brook University, NY, November 2005.
- “Flavor-Changing Processes in Extended Technicolor”
 - Meeting of the Division of Particles and Fields, American Physical Society, Riverside, CA, August 2004.
- “Extended Technicolor Theories”
 - Theoretical Advanced Study Institute Student Seminar, Boulder, CO, June, 2004.

Teaching Experience

- Substitute Teaching
 - PHY 810 – Methods of Theoretical Physics, for Prof. R. Sekhar Chivukula, Michigan State University, September 21-28, 2007 and September 8-12, 2008.
 - PHY 610 – Quantum Field Theory, for Prof. George Sterman, Stony Brook University, (1 day) 2005.
- Teachers Assistant
 - PHY 335 – Junior Electronics Lab, Stony Brook University, Spring 2006.

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- PHY 131 – Classical Physics I, Stony Brook University, Fall 2005.
 - PHY 123 – Physics for Life Sciences I and II, Stony Brook University, Spring and Fall 2003.
 - AST 248 – Search for Life in the Universe, Stony Brook University, Spring 2002.
 - PHY 515 – Graduate Laboratory, Stony Brook University, Fall 2001.
 - MAT 122 – Overview of Calculus with Applications, Stony Brook University, Spring 2001.
 - Physics for Scientists and Engineers I and II, University of Utah, 1998.

Other Activities

- Co-organizer of informal Quantum Field Theory course (Fall 2007). Taught several class periods. (Co-organized with Dr. Ken Hsieh.)
- Co-organizer of “Topics in Quantum Field Theory” course (Spring 2007). Taught one class period. (Co-organized with Prof. R. Sekhar Chivukula.)
- Co-organizer of High Energy Physics Seminars at Michigan State University (Spring 2007 - present). (Co-organizers were Prof. R. Sekhar Chivukula, Prof. James Linne-
mann, Dr. Kazuhiro Tobe and Dr. Ken Hsieh.)