## Curriculum Vitae: Terrance Maynard Figy

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## Education

Ph.D. Physics June 2000 – August 2006
University of Wisconsin-Madison, Madison, WI USA
Title: NLO QCD Corrections to the jet activity in Higgs boson production via vector-boson fusion
Thesis Advisor: Prof. Dr. Dieter Zeppenfeld

**B.S. Physics** August 1996 – May 2000 **University of Wisconsin-Eau Claire, Eau Claire, WI USA** Second major: Mathematics Graduated Magna Cum Laude

# PROFESSIONAL EXPERIENCE

r r	SSIONAL EXPERIENCE	
	Assistant Professor	8/2015 -
	Department of Mathematics,	Wichita, KS, USA
	Statistics & Physics,	
	Wichita State University	
	Ennovar Research Fellow	5/2015 - 5/2016
	Institute of Emerging	Wichita, KS, USA
	Technologies and Market	
	Solutions,	
	Wichita State University	
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	Visiting Assistant Professor	12/2014 - 7/2015
	Department of Mathematics,	Wichita, KS, USA
	Statistics & Physics,	
	Wichita State University	
	NAFUM Research Associate	10/2011 - 9/2014
	School of Physics & Astronomy,	Manchester, United Kingdom
	The University of Manchester	Manchester, enned Hingdom
	U U	
	Postdoctoral Fellow	10/2009 - 9/2011
	Theory Division,	Geneva, Switzerland
	European Organization for	
	Nuclear Research	
	Postdoctoral Research Associate	6/2006 - 9/2009
	Institute for Particle Physics	Durham, United Kingdom
	Phenomenology,	
	University of Durham	

TEACHING EXPERIENCE

- $\bullet$  Instructor for Physics 313: Physics for Scientists I during the 2019 Fall Semester
  - Wichita State University, Wichita, KS USA
- Instructor for Physics 314: *Physics for Scientists II* during the 2019 Fall Semester
- Wichita State University, Wichita, KS USA
- Instructor for Physics 314: *Physics for Scientists II* during the 2019 Spring Semester
  - Wichita State University, Wichita, KS USA
- Instructor for Physics 701G: *Mathematical Methods in Physics* during the 2019 Spring Semester Wichita State University, Wichita, KS USA
- Instructor for Physics 641: *Thermophysics* during the 2018 Fall Semester Wichita State University, Wichita, KS USA
- Instructor for Physics 714: *Theoretical Physics* during the 2018 Fall Semester Wichita State University, Wichita, KS USA
- Instructor for Physics 871: *Statistical Mechanics* during the 2018 Spring Semester

Wichita State University, Wichita, KS USA

• Instructor for Physics 631: *Electricity and Magnetism* during the 2018 Spring Semester

Wichita State University, Wichita, KS USA

- Instructor for Physics 661: Introduction to Atomic Physics during the 2017 Fall Semester Wichita State University, Wichita, KS USA
- Instructor for Physics 661: Introduction to Atomic Physics during the 2017 Fall Semester Wichita State University, Wichita, KS USA
- Instructor for Physics 714: *Theoretical Physics* during the 2016 Fall Semester Wichita State University, Wichita, KS USA
- Instructor for Physics 631: *Electricity and Magnetism* during the 2016 Spring Semester Wichita State University, Wichita, KS USA
- Instructor for Physics 313: *Physics for Scientists I* during the 2015 Spring Semester Wichita State University, Wichita, KS USA
- Instructor for Physics 314: *Physics for Scientists II* during the 2015 Spring Semester
  - Wichita State University, Wichita, KS USA
- Tutor for 2nd year Physics Tutorial Sessions from 2011 to 2014 The University of Manchester, Manchester, United Kingdom
- Tutor for Level 1 Physics Tutorial Sessions from 2007 to 2009 University of Durham, Durham, United Kingdom
- Tutor for Level 1 Computing Lab on Fortran from 2006 to 2007 University of Durham, Durham, United Kingdom
- Teaching Assistant for 100 and 200 level physics courses from 2000 to 2006 University of Wisconsin-Madison, Madison, WI USA

#### SUPERVISION OF STUDENTS

- Department of Mathematics, Statistics, and Physics
  - Supervised Tinghua Chen (Ph.D. Student) from 2018 present
  - Supervised Tinghua Chen (Masters Student) from 2017 to 2018
- Department of Physics, University of Durham
  - Co-supervised Sophy Palmer (Ph.D. student) from 2006 to 2010 with Dr. Georg Weiglein
  - Co–supervised Ian Boreham (MSci student) from 2006 to 2007 with Dr. Frank Krauss

## PUBLICATIONS AND PREPRINTS

- T. Chen, T. M. Figy and W. T. Giele, "A Projective Phase Space Generator for Hadronic Vector Boson Plus One Jet Production," arXiv:1907.03893 [hep-ph]. Submitted to Physical Review D.
- P. Azzi *et al.*, "Report from Working Group 1 : Standard Model Physics at the HL-LHC and HE-LHC," CERN Yellow Rep. Monogr. 7, 1 (2019) doi:10.23731/CYRM-2019-007.1 [arXiv:1902.04070 [hep-ph]].
- T. M. Figy and W. T. Giele, "A Forward Branching Phase Space Generator for Hadron colliders," JHEP 1810, 203 (2018) doi:10.1007/JHEP10(2018)203 [arXiv:1806.09678 [hep-ph]].
- 4. F. Campanario, T. M. Figy, S. Pltzer, M. Rauch, P. Schichtel and M. Sjdahl, "Stress testing the vector-boson-fusion approximation in multijet final states," Phys. Rev. D 98, no. 3, 033003 (2018) doi:10.1103/PhysRevD.98.033003 [arXiv:1802.09955 [hep-ph]].
- D. de Florian *et al.* [LHC Higgs Cross Section Working Group], "Handbook of LHC Higgs Cross Sections: 4. Deciphering the Nature of the Higgs Sector," arXiv:1610.07922 [hep-ph]. CERN Yellow Reports: Monographs Volume 2/2017 (CERN-2017-002-M).
- J. Baglio, J. Bellm, F. Campanario, B. Feigl, J. Frank, T. Figy, M. Kerner and L. D. Ninh *et al.*, "Release Note - VBFNLO 2.7.0," arXiv:1404.3940 [hep-ph].
- F. Campanario, T. M. Figy, S. Plätzer and M. Sjödahl, "Electroweak Higgs plus Three Jet Production at NLO QCD," Phys. Rev. Lett. **111**, 211802 (2013) [arXiv:1308.2932 [hep-ph]].
- K. Arnold, J. Bellm, G. Bozzi, F. Campanario, C. Englert, B. Feigl, J. Frank and T. Figy *et al.*, "Release Note – Vbfnlo-2.6.0," arXiv:1207.4975 [hep-ph].
- T. Figy and R. Zwicky, "The other Higgses, at resonance, in the Lee-Wick extension of the Standard Model," JHEP **1110** (2011) 145 [arXiv:1108.3765 [hep-ph]].
- K. Arnold, J. Bellm, G. Bozzi, M. Brieg, F. Campanario, C. Englert, B. Feigl, J. Frank *et al.*, "VBFNLO: A parton level Monte Carlo for processes with electroweak bosons – Manual for Version 2.5.0," [arXiv:1107.4038 [hep-ph]].
- T. Figy, S. Palmer and G. Weiglein, "Higgs Production via Weak Boson Fusion in the Standard Model and the MSSM," JHEP **1202**, 105 (2012) [arXiv:1012.4789 [hep-ph]].

- K. Arnold, T. Figy, B. Jager and D. Zeppenfeld, "Next-to-leading order QCD corrections to Higgs boson production in association with a photon via weak-boson fusion at the LHC," JHEP **1008** (2010) 088 [arXiv:1006.4237 [hep-ph]].
- T. Figy, K. Rolbiecki and Y. Santoso, "Tau-Sneutrino NLSP and Multilepton Signatures at the LHC," Phys. Rev. D 82 (2010) 075016 [arXiv:1005.5136 [hep-ph]].
- K. Arnold *et al.*, "VBFNLO: A parton level Monte Carlo for processes with electroweak bosons," Comput. Phys. Commun. **180** (2009) 1661 [arXiv:0811.4559 [hep-ph]].
- A. Dedes, T. Figy, S. Hoche, F. Krauss and T. E. J. Underwood, "Searching for Nambu-Goldstone Bosons at the LHC," JHEP **11** (2008) 036 [arXiv:0807.4666 [hep-ph]].
- T. Figy, "Next-to-leading order QCD corrections to light Higgs Pair production via vector boson fusion," Mod. Phys. Lett. A 23 (2008) 1961 [arXiv:0806.2200 [hep-ph]].
- 17. T. Figy, V. Hankele and D. Zeppenfeld, "Dominant next-to-leading order QCD corrections to Higgs plus three jet production in vector-boson fusion," JHEP **02** (2008) 076 [arXiv:0710.5621].
- O. Brein and T. M. Figy, "Charged Higgs-boson production in association with an electron and a neutrino at electron-positron colliders," Phys. Rev. D 77 (2008) 055004 [arXiv:0710.4121 [hep-ph]].
- V. Hankele, G. Klamke, D. Zeppenfeld and T. Figy, "Anomalous Higgs boson couplings in vector boson fusion at the CERN LHC," Phys. Rev. D 74, 095001 (2006) [arXiv:hep-ph/0609075].
- P. Burikham, T. Figy and T. Han, "TeV-scale string resonances at hadron colliders," Phys. Rev. D 71, 016005 (2005) [Erratum-ibid. D 71, 019905 (2005)] [arXiv:hep-ph/0411094].
- T. Figy and D. Zeppenfeld, "QCD corrections to jet correlations in weak boson fusion," Phys. Lett. B 591, 297 (2004) [arXiv:hep-ph/0403297].
- T. Figy, C. Oleari and D. Zeppenfeld, "Next-to-leading order jet distributions for Higgs boson production via weak-boson fusion," Phys. Rev. D 68, 073005 (2003) [arXiv:hep-ph/0306109].

## Conference Proceedings

- 1. F. Campanario, T. M. Figy, S. Plätzer and M. Sjödahl, "Beyond the tchannel Approximation: Next-to-Leading Order QCD Corrections to Electroweak Higgs Boson Plus Three Jet Production at the LHC," arXiv:1407.5050 [hep-ph].
- F. Campanario, T. M. Figy, S. Plätzer and M. Sjödahl, "NLO QCD Corrections to Electroweak Higgs Boson Plus Three Jet Production at the LHC," arXiv:1311.5455 [hep-ph].
- 3. K. Arnold, T. Figy, B. Jager, D. Zeppenfeld, "Higgs boson production in association with a photon via weak boson fusion," arXiv:1110.2402 [hep-ph].
- S. Dawson *et al.*, "Higgs Working Group Summary Report," arXiv:0803.1154 [hep-ph].

- T. Figy, C. Oleari and D. Zeppenfeld, "QCD corrections to vector boson fusion processes," Nucl. Phys. Proc. Suppl. 135, 9(2004) [arxiv:hepph/0407066].
- G. Azuelos et al., "Search for the standard model Higgs boson using vector boson fusion at the LHC," Prepared for Workshop on Physics at TeV Colliders, Les Houches, France, 21 May - 1 Jun 2001

#### Conference Presentations

- 1. Particles Physics on the Plains 2019 Oct. 12-13, 2019 University of Kansas, Lawrence, KS, USA Title: A Projective Phase Space Generator for Vector Boson Plus Jet Production 2. Loopfest XVIII: Radiative Corrections for the LHC and Future Colliders Aug. 12-14, 2019 Fermi National Accelerator Laboratory, Batavia, USA Title: Stress testing the vector-boson-fusion approximation in multijet final states 3. Particles Physics on the Plains 2018 Oct. 13-14, 2018 University of Kansas, Lawrence, KS, USA Title: A Forward Branching Phase Space Generator for Hadron Colliders 4. PASCOS 2018 June 4-8, 2018 Case Western Reserve University, Cleveland, Ohio, USA Title: Higgs Boson Production via Vector Boson Fusion Recieves a Stress Test5. Higgs plus dijets at the LHC Jan 10-12, 2018 Durham, United Kingdom Title: Stress-Testing the VBF Approximation with Higgs Boson plus Three Jet Production 6. Particles Physics on the Plains 2017 Sept. 30, 2017 University of Kansas, Lawrence, KS, USA Title: Stress-Testing the VBF Approximation in Higgs Boson Production 7. Loopfest XVI: Radiative Corrections for the LHC and Future Colliders
- May 31- June 2, 2017 Argonne National Laboratory, Argonne, ILL, USA Title: *EW Higgs Boson Production in Association with Three Jets at the LHC*
- 8. American Physical Society April Meeting 2017 Jan 28-31, 2017 Washington, DC USA Title: NLO QCD Corrections to Electroweak Higgs Boson Production in Association with Three Jets at the LHC
- 9. Pheno 16 Symposium May 9-11, 2016 University of Pittsburg, Pittsburgh, PA USA

Title: NLO QCD Corrections to Electroweak Higgs Boson Production in Association of Three Jets at the LHC

10. SUSY 2014

July 21-26, 2014 Manchester, United Kingdom Title: Electroweak Higgs Boson Production in Association with Three Jets (A.K.A. VBF + 1 Jet) at NLO QCD

11. LoopFest XIII

June 17-20, 2014 Brooklyn, New York, USA Title: Electroweak Higgs Boson Production in Association with Three Jets (A.K.A. VBF + 1 Jet) at NLO QCD

- 12. Loops and Legs in Quantum Field Theory April 27-May 2, 2014
  Weimar, Germany Title:Next-to-Leading Order QCD Corrections to Electroweak Higgs Boson Production in Association of Three Jets at the LHC
- 13. RADCOR 2013 Sept 22-27, 2013 Lumley Castle, Chester le Street, United Kingdom Title: NLO QCD Corrections to Electroweak Higgs Boson Plus Three Jet Production at the LHC
- 14. Pheno 12 Symposium May 7-9, 2012 University of Pittsburg, Pittsburgh, PA USA Title: The other, Higgses, as resonance, in the Lee-Wick extension of the Standard Model
- 15. Pheno 11 Symposium May 9-11, 2011 University of Wisconsin-Madison, Madison, WI USA Title: Next-to-leading order corrections in Higgs boson production in association of a photon via weak boson fusion
- 16. Workshop on Heavy Particles at the LHC Jan 5-7, 2011
  ETH, Zurich, Switzerland
  Title: Next-to-leading order QCD corrections in Higgs boson production in association of a photon via VBF
- 17. Pheno 10 Symposium May 10-12, 2010 University of Wisconsin-Madison, Madison, WI USA Title: Higgs Boson Pair Production within the Lee-Wick Standard Model
- Collider Physics 2009: Joint Argonne and IIT Theory Institute May 18-22, 2009
   Title: The Phenomenology of the U(1) Phantom Sector of the Standard Model
- 19. Pheno 09 Symposium May 11-13, 2009
  University of Wisconsin-Madison, Madison, WI USA Title: Pure leptonic signatures with a sneutrino NLSP at the LHC

- 20. LoopFest VII Radiative Corrections for the LHC and ILC May 14-16, 2008 University at Buffalo, Buffalo, NY USA Title: Higgs plus three jets via vector boson fusion at NLO QCD
- 21. Monte Carlo Tools for Beyond the Standard Model Physics 3rd Workshop March 10-11, 2008 CERN Title: Littlest Higgs in Sherpa
- 22. The HEPTools First Annual Meeting November 26-27, 2007 NCSR Demokritos, Athens, Greece Title: NLO QCD Corrections to Higgs Plus Three Jet Production in Vector-Boson Fusion
- 23. LHC-D Workshop 2007: Higgs Physics October 8-9, 2007 Albert-Ludwigs-Universität Freiburg, Freiburg, Germany Title: NLO QCD Corrections for VBF Higgs Production and the Central Jet Veto
- 24. 1st Annual ARTEMIS Meeting September 27-28, 2007 Chalkidiki, Greece Title: VBF Higgs Production at NLO QCD
- 25. Brookhaven Forum 2007: New Horizons at Colliders May 30 - June 1, 2007
  Brookhaven National Laboratory (BNL), Brookhaven, New York, USA Title: NLO QCD Corrections for Higgs Production via VBF in Association of Three Jets at the LHC
- 26. Pheno 04 Symposium April 26-28, 2004 University of Wisconsin-Madison, Madison, WI USA Title: QCD Corrections to Jet Correlations in Weak Boson Fusion
- 27. LoopFest III April 1-3, 2004
  Kavli Institute for Theoretical Physics
  University of California-Santa Barbara, Santa Barbara, CA USA
  Title: NLO QCD Corrections for Higgs Production via Weak Boson Fusion

## Seminar Presentations

- Fermilab Theory Seminars
   Fermi National Accelerator Laboratory, Batavia, IL USA
   Title:Generating QCD Corrected Multi-Jet Events at Hadron Colliders
   using Innovative Phase Space Sampling Methods
   October 2019
- 2. Colloquium Universidad de Colima, Colima, MX Title: Scrutinizing Higgs Boson Scattering Cross Section Predictions with Precision November 2018

3. Michigan State University High Energy Physics Seminar Michigan State University, Lansing, Michigan, USA Title: Stress-testing the VBF Approximation with Higgs Boson Plus Three Jet Production September 2017 4. Southampton High Energy Physics Seminars University of Southampton, Southampton, United Kingdom Title: Next-to-Leading Order QCD Corrections to Electroweak Higgs Boson Production in Association with Three Jets at the LHC May 2014 5. Liverpool High Energy Theory Group Seminar University of Liverpool, Liverpool, United Kingdom Title: Electroweak Higgs Boson Production in Association of Three Jets (A.K.A VBF + 1 Jet) at NLO QCD March 2014 6. Fermilab Theory Seminars Fermi National Accelerator Laboratory, Batavia, IL USA Title: Electroweak Higgs Boson Production in Association with Three Jets (A.K.A. VBF + 1 Jet) at NLO QCD December 2013 7. Theory Seminars University of Wisconsin-Madison, Madison, WI USA Title: Electroweak Higgs Boson Production in Association with Three Jets (A.K.A. VBF + 1 Jet) at NLO QCD December 2013 8. Birmingham Particle Physics Seminars University of Birmingham, Birmingham, United Kingdom Title: The other Higges, at resonance, in the Lee-Wick extension of the Standard Model February 2012 9. HEP phenomenology joint Cavendish-DAMTP seminar series University of Cambridge, Cambridge, United Kingdom Title: The other Higges, at resonance, in the Lee-Wick extension of the Standard Model January 2012 10. Liverpool High Energy Theory Group Seminar University of Liverpool, Liverpool, United Kingdom Title: The other Higges, at resonance, in the Lee-Wick extension of the Standard Model November 2011 11. Manchester Particle Physics Seminar The University of Manchester, Manchester, United Kingdom Title: The other Higges, at resonance, in the Lee-Wick extension of the Standard Model November 2011 12. DESY Theory Seminar DESY, Hamburg, Germany Title: Higgs-Photon Associated Production in Vector Boson Fusion at NLO July 2011

	13.	Manchester Particle Physics Seminar The University of Manchester, Manchester, United Kingdom Title: <i>Higgs–Photon Associated Production in Vector Boson Fusion at NLO</i> May 2011
	14.	Particle Physics Seminars Royal Holloway University London, Title: <i>Theoretical Calculations for Higgs searches at the LHC</i> December 2009
	15.	Liverpool High Energy Theoretical Physics University of Liverpool, Liverpool, United Kingdom Title: The phenomenology of the $U(1)$ phantom sector of the Standard Model March 2009
	16.	HEP Theory Group Argonne National Laboratory, Argonne,IL USA Title: Vector boson fusion Higgs production at the LHC May 2008
	17.	Phenomenology Institute University of Wisconsin-Madison, Madison, WI USA Title: Vector Boson Fusion Higgs Production at the LHC May 2008
	18.	Theoretical Physics Department Fermi National Accelerator Laboratory, Batavia, IL USA Title: <i>QCD Corrections to Vector-Boson-Fusion Higgs Production Chan-</i> <i>nels</i> May 2008
	19.	The Particle Physics Theory Group University of Edinburgh, Edinburgh, United Kingdom Title: NLO QCD corrections for Higgs production via VBF in association of three jets March 2008
	20.	Institute for Particle Physics Phenomenology Durham University, Durham, United Kingdom Title: Charged Higgs boson production at electron-positron colliders within the MSSM and THDM January 2008
	21.	High Energy Physics Group University of Cambridge, Cambridge, United Kingdom Title: NLO QCD Corrections to Higgs Production via Vector Boson Fu- sion in Association of Three Jets at the LHC June 2007
	22.	Particle Physics Theory Group University of Glasgow, Glasgow, United Kingdom Title: Anomalous Higgs Couplings Feb 2007
:	23.	Theoretical High Energy Particle Physics Group Centre for Mathematical Sciences, Cambridge, United Kingdom Title: Anomalous Higgs Couplings Feb 2007

- 24. Institute for Particle Physics Phenomenology Department of Physics, Durham, United Kingdom Title: NLO QCD Jet Distributions for Higgs Production via Weak-Boson Fusion March 2006
- 25. Institut für Theoretische Physik Universität Karlsruhe, Karlsruhe, Germany Title: The Dipole Subtraction Method of Catani and Seymour May 2005
- 26. Phenomenology Institute University of Wisconsin-Madison, Madison, WI USA Title: NLO QCD Corrections for Higgs Production via Weak-Boson Fusion March 2004

#### WORKSHOPS ATTENDED

- Les Houches Workshop: Physics at TeV Colliders May 30 – June 8, 2011 Ecole de Physique des Houches, Les Houches, France
- Galileo Galilei Institute for Theoretical Physics Workshop: Searching for New Physics at the LHC October 4 – 23, 2009 Arcetri, Florence, Italy
- CERN Theory Institute: SM and BSM physics at the LHC August 3–28, 2009 CERN, Geneva, Switzerland
- IoP Half Day meeting: Theory for experimentalists February 20, 2008 Durham, United Kingdom
- Higgs Maxwell Workshop: Challenges for the LHC February 13, 2008
   Edinburgh, United Kingdom
- Galileo Galilei Institute for Theoretical Physics Workshop: Advancing Collider Physics: from Twistors to Monte Carlos August 25-September 15, 2007 Arcetri, Florence, Italy
- Higgs Maxwell Workshop: Challenges for the LHC February 7, 2007
   Edinburgh, United Kingdom
- 1st ARTEMIS Workshop January 25-26, 2007 London, United Kingdom
- Workshop HP2: High Precision for Hard Processes at the LHC September, 6-9 2006, Zürich, Switzerland
- TEV4LHC Workshop, 3rd meeting April 28-30, 2005, CERN

UNIVERSITY SERVICE

- Physics Scholarship Committee Chair, Wichita State University, 2017 present
- XSEDE Campus Champion, Wichita State University, 2018 present
- LAS Exceptions Committee, Wichita State University, 2017 present
- Co-organizer of the Weekly Physics Chat, Wichita State University, 2017 present
- Faculty Senator, 2019 present
- ITS Governance Committee, 2019 present
- Campus Champion for the BeoShock HPC system, 2019 present

## WORKING GROUPS

- LHC Higgs Cross Section Working Group
- HL/HE-LHC Physics Workshop Standard Model Working Group

Honor Societies, Awards, and Memberships

- Sigma Pi Sigma Physics Honor Society
- Phi Eta Sigma Freshman Honor Society
- Phi Eta Sigma 1996-1997 Eau Claire Chapter President
- 1997 Phi Eta Sigma Scholarship Award
- Golden Key National Honor Society
- American Physical Society