

CURRICULUM VITAE

Radovan Dermíšek

Physics Department, Indiana University, Bloomington

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Bloomington, IN 47405, USA

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EDUCATION

- Ph.D. 2002:** Physics, Department of Physics, The Ohio State University
Adviser: Dr. S. Raby
Thesis Title: SO(10) Supersymmetric Grand Unified Theories
- M.S. 1998:** Physics, Department of Physics, The Ohio State University
- Mgr. 1995:** *summa cum laude*, Physics, Charles University, Prague, Czech Republic
Adviser: Dr. J. Formánek
Thesis Title: Deep Inelastic Scattering

PROFESSIONAL AND TEACHING EXPERIENCE

- Jul. 2014 – present** Associate Professor, Indiana University, Bloomington
- Aug. 2008 – Jun. 2014** Assistant Professor, Indiana University, Bloomington
- Sep. 2005 – Aug. 2008** Member, Institute for Advanced Study, Princeton
- Sep. 2002 – Aug. 2005** Postdoctoral Fellow,
Davis Institute for High Energy Physics, UC Davis
- Oct. 2001 – Sep. 2002** Presidential Fellow, The Ohio State University
- Jan. 1999 – Sep. 2001** Graduate Research Assistant, High Energy Physics
Theory Group, The Ohio State University
- Sep. 1997 – Dec. 1998** Graduate Teaching Assistant,
Department of Physics, The Ohio State University
- Sep. 1995 – June 1997** Research Assistant, Faculty of Mathematics and Physics,
Charles University, Prague, Czech Republic

AWARDS AND HONORS

- Nov. 2011 – present** research grant, U.S. Department of Energy
- 2018** Graduate Teaching Award, Physics Department, Indiana University
- Aug. 2015 – Dec. 2016** Brain Pool Program Award, South Korea
- 2012** Outstanding Junior Faculty Award, Indiana University
- 2011** Trustees Teaching Award, Board of Trustees, Indiana University
- 2010** Konopinski Teaching Award, Physics Department, Indiana University
- Jun. 2010 – May 2011** Faculty Research Support Program Award, Indiana University
- Oct. 2001 – Sep. 2002** Presidential Fellowship, The Ohio State University

VISITS (LONGER THAN 3 MONTHS)

Jun. 2016 – Dec. 2016	Seoul National University, South Korea
Aug. 2015 – Dec. 2015	Seoul National University, South Korea
Jan. 2011 – Jun. 2011	Korea Institute for Advanced Study, and Seoul National University
Mar. 2001 – Aug. 2001	CERN, Theory Division, Geneva, Switzerland
Sep. 2000 – Feb. 2001	Department of Physics, University of Bonn, Germany

COURSES TAUGHT

Spring 2018, 19, 20	Relativistic Quantum Field Theory II, P622
Fall 2017, 18, 19	Relativistic Quantum Field Theory I, P621
Spring 2014, 15, 16, 17	General Physics I, P201
Fall 2013, 14	Classical Mechanics, P521
Fall 2010, 11, 12	General Physics I, P201
Spring 2009, 10	Relativistic Quantum Field Theory II, P622
Fall 2008, 09	Relativistic Quantum Field Theory I, P621

COMMITTEE MEMBERSHIPS (* CURRENTLY ACTIVE)

College of Arts and Sciences, Indiana University:

Academic Fairness Committee*, Faculty Review Committee for the 2012 Faculty Research Support Program

Physics Department, Indiana University:

Space and Furnishings (chair)*, Departmental Awards*, Graduate Admission and Financial Support*, Astrophysics*, Colloquium, Renovation Oversight, Teaching of Physics, Undergrad Curriculum, Vision Plan/Self-Study, Executive committee, Graduate Curriculum and Exams, Graduate Advising, Graduate Recruiting, Faculty Course Assignment, Diversity, Konopinski Lecture, Library, Outreach

PROFESSIONAL SERVICE (* CURRENTLY ACTIVE)

Reviewer of grant proposals, National Science Foundation*

Referee for Physical Review Letters, Physical Review D, Physics Letters B, Nuclear Physics B, JHEP*

Contributor to the Report on the Physics of the HL-LHC, and Perspectives at the HE-LHC, 2018

Editorial Board, Symmetry (<http://www.mdpi.com/journal/symmetry/editors>)

Contributor to the Community Summer Study – Snowmass 2013

Reviewer of proposals for the 2012 Faculty Research Support Program, Indiana University

Contributor to the document written for Department of Energy, from Fundamental Physics at the Intensity Frontier, Proton Decay Working Group, 2011

Organizer, workshop “Tevatron Anomalies and LHC”, Seoul National University, May 20, 2011

Contributor to DUSEL Theory White Paper for National Science Foundation, 2008

LIST OF PUBLICATIONS

Radovan Dermíšek

Physics Department, Indiana University, Bloomington

Below is a comprehensive list of my publications. All papers published in journals were peer reviewed. Papers published only on arXiv or in conference proceedings were not peer reviewed.

R. Dermisek, E. Lunghi and S. Shin, *Cascade decays of Heavy Higgs bosons through vectorlike quarks*, submitted to JHEP, arXiv:1907.07188 [hep-ph].

R. Dermisek, E. Lunghi and S. Shin, *Hunting for Vectorlike Quarks*, JHEP **1904**, 019 (2019) [arXiv:1901.03709 [hep-ph]].

X. Cid Vidal *et al.*, *Beyond the Standard Model Physics at the HL-LHC and HE-LHC*, contribution to the Report on the Physics of the HL-LHC and Perspectives at the HE-LHC, CERN Yellow Rep. Monogr. **7**, 585 (2019) [arXiv:1812.07831 [hep-ph]].

R. Dermisek and N. McGinnis, *Seven largest couplings of the standard model as IR fixed points*, Phys. Rev. Lett. **122**, no. 18, 181803 (2019) [arXiv:1812.05240 [hep-ph]].

R. Dermisek and N. McGinnis, *Top-bottom-tau Yukawa coupling unification in the MSSM+1VF and fermion masses as IR fixed points*, Phys. Rev. D **99**, no. 3, 035033 (2019) [arXiv:1810.12474 [hep-ph]].

R. Dermisek, *SUSY scenarios according to EWSB*, invited talk at 2017 European Physical Society Conference on High Energy Physics (EPS-HEP 2017), July 5-12, 2017, Venice, Italy, proceedings of the EPS-HEP 2017, arXiv:1712.04626 [hep-ph].

R. Dermisek and N. McGinnis, *Mass scale of vectorlike matter and superpartners from IR fixed point predictions of gauge and top Yukawa couplings*, Phys. Rev. D **97**, no. 5, 055009 (2018) [arXiv:1712.03527 [hep-ph]].

R. Dermisek and N. McGinnis, *Little hierarchy in the minimally specified MSSM*, Int. J. Mod. Phys. A **33**, no. 25, 1850145 (2018) [arXiv:1705.01910 [hep-ph]].

D. Chway, R. Dermisek, T. H. Jung and H. D. Kim, *Model Independent Constraints on Charges of New Particles*, Phys. Rev. D **95**, no. 11, 115004 (2017) [arXiv:1612.05031 [hep-ph]].

R. Dermisek, *Emergence of small numbers in complex systems and the origin of the electroweak scale*, arXiv:1611.03188 [hep-ph].

R. Dermisek, *Loop suppressed electroweak symmetry breaking and naturally heavy stops*, AIP Conf. Proc. **1900**, no. 1, 020004 (2017), invited talk at Neutrino Physics/Unification Session of CETUP

2016, June 20 – July 1, 2016, Deadwood, South Dakota, proceedings of the CETUP 2016.

R. Dermisek, E. Lunghi and S. Shin, *New constraints and discovery potential for Higgs to Higgs cascade decays through vectorlike leptons*, JHEP **1610**, 081 (2016) [arXiv:1608.00662 [hep-ph]].

R. Dermisek, *Loop suppressed electroweak symmetry breaking and naturally heavy superpartners*, Phys. Rev. D **95**, no. 1, 015002 (2017) [arXiv:1606.09031 [hep-ph]].

D. Chway, R. Dermisek, T. H. Jung and H. D. Kim, *Gluons to Diphotons via New Particles with Half the Signal's Invariant Mass*, Phys. Rev. Lett. **117**, no. 6, 061801 (2016) [arXiv:1512.08221 [hep-ph]].

R. Dermisek, E. Lunghi and S. Shin, *New decay modes of heavy Higgs bosons in a two Higgs doublet model with vectorlike leptons*, JHEP **1605**, 148 (2016) [arXiv:1512.07837 [hep-ph]].

R. Dermisek, E. Lunghi and S. Shin, *Two Higgs doublet model with vectorlike leptons and contributions to $pp \rightarrow WW$ and $H \rightarrow WW$* , JHEP **1602**, 119 (2016) [arXiv:1509.04292 [hep-ph]].

G. Ricciardi *et al.*, *Flavour, Electroweak Symmetry Breaking and Dark Matter: state of the art and future prospects*, Eur. Phys. J. Plus **130**, no. 10, 209 (2015) [arXiv:1507.05029 [hep-ph]].

R. Dermisek, E. Lunghi and S. Shin, *Contributions of flavor violating couplings of a Higgs boson to $pp \rightarrow WW$* , JHEP **1508**, 126 (2015) [arXiv:1503.08829 [hep-ph]].

R. Dermisek, J. P. Hall, E. Lunghi and S. Shin, *Limits on Vectorlike Leptons from Searches for Anomalous Production of Multi-Lepton Events*, JHEP **1412**, 013 (2014) [arXiv:1408.3123 [hep-ph]].

R. Dermisek, A. Raval and S. Shin, *Effects of vectorlike leptons on $h \rightarrow 4\ell$ and the connection to the muon $g-2$ anomaly*, Phys. Rev. D **90**, 034023 (2014) [arXiv:1406.7018 [hep-ph]].

R. Dermisek, T. H. Jung and H. D. Kim, *Radiative Electroweak Symmetry Breaking Model Perturbative All the Way to the Planck Scale*, Phys. Rev. Lett. **113**, 051801 (2014) [arXiv:1308.0891 [hep-ph]].

R. Dermisek, J. P. Hall, E. Lunghi and S. Shin, *A New Avenue to Charged Higgs Discovery in Multi-Higgs Models*, JHEP **1404**, 140 (2014) [arXiv:1311.7208 [hep-ph]].

K. S. Babu, E. Kearns, U. Al-Binni, S. Banerjee, D. V. Baxter, Z. Berezhiani, M. Bergevin and S. Bhattacharya *et al.*, *Working Group Report: Baryon Number Violation*, report of the Community Summer Study (Snowmass 2013), Intensity Frontier – Baryon Number Violation Group, arXiv:1311.5285 [hep-ph].

R. Dermisek and A. Raval, *Explanation of the Muon $g-2$ Anomaly with Vectorlike Leptons and its Implications for Higgs Decays*, Phys. Rev. D **88**, 013017 (2013) [arXiv:1305.3522 [hep-ph]].

R. Dermisek, E. Lunghi and A. Raval, *Trilepton Signatures of Light Charged and CP-odd Higgs*

- Bosons in Top Quark Decays*, JHEP **1304**, 063 (2013) [arXiv:1212.5021 [hep-ph]].
- R. Dermisek, *Unification of Gauge Couplings in the Standard Model with Extra Vector-like Families*, Phys. Rev. **D87**, 055008 (2013) [arXiv:1212.3035 [hep-ph]].
- R. Dermisek, *Insensitive Unification of Gauge Couplings with Three Vector-like Families*, AIP Conf. Proc. **1534**, 253 (2012), invited talk at Neutrino Physics and Unification Session of the CETUP 2012, July 23-28, 2012, Deadwood, SD, proceedings of the CETUP 2012.
- J. L. Hewett, H. Weerts, R. Brock, J. N. Butler, B. C. K. Casey, J. Collar, A. de Gouvea and R. Essig *et al.*, *Fundamental Physics at the Intensity Frontier*, arXiv:1205.2671 [hep-ex].
- R. Dermisek, *Insensitive Unification of Gauge Couplings*, Phys. Lett. B **713**, 469 (2012) [arXiv:1204.6533 [hep-ph]].
- R. Dermisek, S. G. Kim and A. Raval, *Z' near the Z-pole*, Phys. Rev. D **85**, 075022 (2012) [arXiv:1201.0315 [hep-ph]].
- R. Dermisek, S. G. Kim, A. Raval, *New Vector Boson Near the Z-pole and the Puzzle in Precision Electroweak Data*, Phys. Rev. **D84**, 035006 (2011) [arXiv:1105.0773 [hep-ph]].
- R. Dermisek, *Light charged Higgs in the NMSSM*, PoS CHARGED **2010**, 021 (2010), invited talk at Prospects for charged Higgs Discovery at Colliders - CHARGED2010, September 27-30, 2010, Uppsala, Sweden [arXiv:1012.3487 [hep-ph]].
- R. Dermisek, *Hidden Higgs Scenarios: new constraints and prospects at the LHC*, DESY-PROC-2010-01/201, invited talk at Physics at the LHC 2010 (PLHC2010), Hamburg, Germany, 7-12 Jun 2010. arXiv:1008.0222 [hep-ph].
- H. Baer, R. Dermisek, S. Rajagopalan and H. Summy, *Neutralino, axion and axino cold dark matter in minimal, hypercharged and gaugino AMSB*, JCAP **1007**, 014 (2010) [arXiv:1004.3297 [hep-ph]].
- R. Dermisek and J. F. Gunion, *New constraints on a light CP-odd Higgs boson and related NMSSM Ideal Higgs Scenarios*, Phys. Rev. D **81**, 075003 (2010) [arXiv:1002.1971 [hep-ph]].
- K. J. Bae, R. Dermisek, D. Kim, H. D. Kim and J. H. Kim, *Light Higgs Scenario in BMSSM and LEP Precision Data*, arXiv:1001.0623 [hep-ph].
- R. Dermisek and J. F. Gunion, *Direct production of a light CP-odd Higgs boson at the Tevatron and LHC*, Phys. Rev. D **81**, 055001 (2010) [arXiv:0911.2460 [hep-ph]].
- H. Baer, R. Dermisek, S. Rajagopalan and H. Summy, *Prospects for Hypercharged Anomaly Mediated SUSY Breaking at the LHC*, JHEP **0910**, 078 (2009) [arXiv:0908.4259 [hep-ph]].
- R. Dermisek, *Unusual Higgs or Supersymmetry from Natural Electroweak Symmetry Breaking*, Mod.

- Phys. Lett. A **24**, 1631 (2009) [arXiv:0907.0297 [hep-ph]].
- R. Dermisek and J. F. Gunion, *Many Light Higgs Bosons in the NMSSM*, Phys. Rev. D **79**, 055014 (2009) [arXiv:0811.3537 [hep-ph]].
- S. Raby *et al.*, *DUSEL Theory White Paper*, arXiv:0810.4551 [hep-ph].
- R. Dermisek, *Light Charged and CP-odd Higgses in MSSM-like Models*, presented at SUSY 08, Seoul, Korea, 16-21 Jun 2008 and ICHEP 08, Philadelphia, PA, July 29th - August 5th, 2008, AIP Conf. Proc. **1078**, 226 (2009), arXiv:0809.3545 [hep-ph].
- R. Dermisek, *Light Charged Higgs and Lepton Universality in W boson Decays*, arXiv:0807.2135 [hep-ph].
- R. Dermisek, *Light CP-odd Higgs and Small $\tan\beta$ Scenario in the MSSM and Beyond*, arXiv:0806.0847 [hep-ph].
- S. Chang, R. Dermisek, J. F. Gunion and N. Weiner, *Nonstandard Higgs Boson Decays*, Ann. Rev. Nucl. Part. Sci. **58**, 75 (2008) [arXiv:0801.4554 [hep-ph]].
- R. Dermisek, H. Verlinde and L. T. Wang, *Hypercharged Anomaly Mediation*, Phys. Rev. Lett. **100**, 131804 (2008) [arXiv:0711.3211 [hep-ph]].
- R. Dermisek and J. F. Gunion, *A Comparison of Mixed-Higgs Scenarios In the NMSSM and the MSSM*, Phys. Rev. D **77**, 015013 (2008) [arXiv:0709.2269 [hep-ph]].
- R. Dermisek and J. F. Gunion, *The NMSSM Solution to the Fine-Tuning Problem, Precision Electroweak Constraints and the Largest LEP Higgs Event Excess*, Phys. Rev. D **76**, 095006 (2007) [arXiv:0705.4387 [hep-ph]].
- K. J. Bae, R. Dermisek, H. D. Kim and I. W. Kim, *Mixed bino-wino-higgsino dark matter in gauge messenger models*, JCAP **0708**, 014 (2007) [arXiv:hep-ph/0702041].
- R. Dermisek and I. Low, *Probing the stop sector and the sanity of the MSSM with the Higgs boson at the LHC*, Phys. Rev. D **77**, 035012 (2008) [arXiv:hep-ph/0701235].
- R. Dermisek, J. F. Gunion and B. McElrath, *Probing NMSSM scenarios with minimal fine-tuning by searching for decays of the Upsilon to a light CP-odd Higgs boson*, Phys. Rev. D **76**, 051105 (2007) [arXiv:hep-ph/0612031].
- R. Dermisek and J. F. Gunion, *Naturalness of EWSB in NMSSM and Higgs at 100 GeV*, AIP Conf. Proc. **903**, 357 (2007) [arXiv:hep-ph/0611197].
- R. Dermisek and J. F. Gunion, *The NMSSM close to the R-symmetry limit and naturalness in h*

- $\rightarrow aa$ decays for $m(a) < 2m(b)$, Phys. Rev. D **75**, 075019 (2007) [arXiv:hep-ph/0611142].
- E. Accomando *et al.*, *Workshop on CP studies and non-standard Higgs physics*, CERN-2006-009 [arXiv:hep-ph/0608079].
- R. Dermisek, H. D. Kim and I. W. Kim, *Mediation of supersymmetry breaking in gauge messenger models*, JHEP **10** 001 (2006) [arXiv:hep-ph/0607169].
- R. Dermisek, M. Harada and S. Raby, *SO(10) SUSY GUT for fermion masses: Lepton flavor and CP violation*, Phys. Rev. D **74**, 035011 (2006) [arXiv:hep-ph/0606055].
- R. Dermisek and H. D. Kim, *Radiatively Generated Maximal Mixing Scenario for the Higgs Mass and the Least Fine Tuned Minimal Supersymmetric Standard Model*, Phys. Rev. Lett. **96**, 211803 (2006) [arXiv:hep-ph/0601036].
- R. Dermisek and J. F. Gunion, *Consistency of LEP event excesses with an $h \rightarrow aa$ decay scenario and low-fine-tuning NMSSM models*, Phys. Rev. D **73**, 111701 (2006) [arXiv:hep-ph/0510322].
- R. Dermisek, S. Raby, L. Roszkowski and R. Ruiz de Austri, *Dark matter and $B_s \rightarrow \mu^+ \mu^-$ with minimal SO(10) soft SUSY breaking II*, JHEP **0509**, 029 (2005) [arXiv:hep-ph/0507233].
- R. Dermisek and S. Raby, *Bi-large neutrino mixing and CP violation in an SO(10) SUSY GUT for fermion masses*, Phys. Lett. B **622**, 327 (2005) [arXiv:hep-ph/0507045].
- R. Dermisek and J. F. Gunion, *Escaping the large fine tuning and little hierarchy problems in the next to minimal supersymmetric model and $h \rightarrow aa$ decays*, Phys. Rev. Lett. **95**, 041801 (2005) [arXiv:hep-ph/0502105].
- R. Dermisek, *Fermion masses and bi-large lepton mixing from singular matrices*, KEK proceedings 2004-12, presented at SUSY 04, Tsukuba, Japan, 17-23 Jun 2004, arXiv:hep-ph/0409195.
- R. Dermisek, *Neutrino masses and mixing, quark lepton symmetry and strong right-handed neutrino hierarchy*, Phys. Rev. D **70**, 073016 (2004) [arXiv:hep-ph/0406017].
- R. Dermisek, *Unification of couplings and proton decay in SUSY GUTs*, presented at SUSY 2003, Tucson, Arizona, 5-10 Jun 2003, arXiv:hep-ph/0401109.
- H. Baer, C. Balazs, A. Belyaev, R. Dermisek, A. Mafi and A. Mustafayev, *Study of viable models with non-universal gaugino mediation with CompHEP and ISAJET*, Nucl. Instrum. Meth. A **502**, 560 (2003).
- R. Dermisek, *Bilarge neutrino mixing and mass of the lightest neutrino from third generation dominance in a democratic approach*, Phys. Rev. D **70**, 033007 (2004) [arXiv:hep-ph/0312206].
- R. Dermisek, S. Raby, L. Roszkowski and R. Ruiz De Austri, *Dark matter and $B_s \rightarrow \mu^+ \mu^-$ with*

- minimal SO(10) soft SUSY breaking*, JHEP **0304**, 037 (2003) [arXiv:hep-ph/0304101].
- C. Balazs and R. Dermisek, *Yukawa coupling unification and non-universal gaugino mediation of supersymmetry breaking*, JHEP **0306**, 024 (2003) [arXiv:hep-ph/0303161].
- R. Dermisek, *SO(10) supersymmetric grand unified theories*, Ph.D. thesis, The Ohio State University, UMI-30-59232.
- R. Dermisek, S. Raby and S. Nandi, *Magnetic monopoles with Wilson loops on a 5D orbifold*, Nucl. Phys. B **641**, 327 (2002) [arXiv:hep-th/0205122].
- H. Baer, C. Balazs, A. Belyaev, R. Dermisek, A. Mafi and A. Mustafayev, *Viable models with non-universal gaugino mediated supersymmetry breaking*, JHEP **0205**, 061 (2002) [arXiv:hep-ph/0204108].
- T. Blazek, R. Dermisek and S. Raby, *Yukawa unification in SO(10)*, Phys. Rev. D **65**, 115004 (2002) [arXiv:hep-ph/0201081].
- R. Dermisek, *Yukawa coupling unification in SO(10) SUSY GUTs*, presented at SUSY01, Dubna, Russia, 11-17 Jun 2001, arXiv:hep-ph/0108249.
- R. Dermisek and A. Mafi, *SO(10) grand unification in five dimensions: proton decay and the μ problem*, Phys. Rev. D **65**, 055002 (2002) [arXiv:hep-ph/0108139].
- T. Blazek, R. Dermisek and S. Raby, *Predictions for Higgs and SUSY spectra from SO(10) Yukawa unification with $\mu > 0$* , Phys. Rev. Lett. **88**, 111804 (2002) [arXiv:hep-ph/0107097].
- R. Dermisek, *Proton decay in SO(10) SUSY GUT*, talk given at DPF 2000, Columbus, Ohio, 9-12 Aug 2000, Int. J. Mod. Phys. A **16S1B**, 846 (2001) [arXiv:hep-ph/0009236].
- R. Dermisek, A. Mafi and S. Raby, *Supersymmetric grand unification under siege: Proton lifetime upper bound*, Phys. Rev. D **63**, 035001 (2001) [arXiv:hep-ph/0007213].
- R. Dermisek and S. Raby, *Fermion masses and neutrino oscillations in SO(10) supersymmetric grand unified theory with $D_3 \times U(1)$ family symmetry*, Phys. Rev. D **62**, 015007 (2000) [arXiv:hep-ph/9911275].
- R. Dermisek, *Deep inelastic scattering*, diploma thesis, Charles University, Prague, Czech Republic (1995).

LIST OF PRESENTATIONS

Radovan Dermíšek

Physics Department, Indiana University, Bloomington

Below is a comprehensive list of my presentations. If a conference or workshop talk was invited it is explicitly stated. All colloquia, seminars and lectures were invited.

Research on Higgs boson and New Physics, invited talk at Global Research Network Seoul 2019, conference of the National Research Foundation of Korea, Seoul, South Korea, December 4, 2019.

IR fixed point pattern of standard model couplings, talk presented at Planck 2019, Granada, Spain, June 3, 2019.

Combined signatures of heavy Higgses and vectorlike quarks, seminar, Atlas group meeting, Indiana University, Bloomington, Indiana, May 29, 2019.

IR fixed point pattern of couplings in the MSSM+1VF, talk presented at the 27th International Conference on Supersymmetry and Unification of Fundamental Interactions, SUSY 2019, Corpus Christi, Texas, May 22, 2019.

IR fixed point pattern of couplings in the standard model, seminar, The Ohio State University, Columbus, Ohio, February 4, 2019.

Seven largest couplings of the SM as IR fixed points, seminar, Seoul National University, Seoul, South Korea, December 21, 2018.

Standard Model parameters as IR fixed points and Naturalness, informal talks presented at the Galileo Galilei Institute workshop: Beyond Standard Model: Where do we go from here?, Florence, Italy, August 2018.

Understanding gauge and top-bottom-tau Yukawa couplings as IR fixed points in the MSSM with vectorlike family, talk presented at the 26th International Conference on Supersymmetry and Unification of Fundamental Interactions, SUSY 2018, Barcelona, Spain, July 23, 2018.

Combined signatures of heavy Higgses and vectorlike fermions at the HL/HE LHC, talk presented at the Workshop on the physics of HL-LHC, and perspectives at HE-LHC, CERN, Geneva, Switzerland, June 18, 2018.

Understanding parameters of the standard model from the MSSM extended by a complete vectorlike family, seminar, University of Notre Dame, Notre Dame, Indiana, February 27, 2018.

Understanding parameters of the standard model, seminar, Seoul National University, Seoul, South

Korea, December 19, 2017.

Little hierarchy in the minimally specified MSSM, talk presented at the Brookhaven Forum 2017: In Search of New Paradigms, BNL, Upton, New York, October 12, 2017.

Little hierarchy in the minimally specified MSSM, talk presented at the Meeting of the American Physical Society Division of Particles and Fields, DPF 2017, Fermilab, Batavia, Illinois, July 31, 2017.

SUSY Scenarios according to EWSB, invited talk presented at The European Physical Society Conference on High Energy Physics, EPS-HEP 2017, Venice, Italy, July 6, 2017.

Little hierarchy from complexity, seminar, Seoul National University, Seoul, South Korea, December 28, 2016.

Hierarchy from complexity, invited talk presented at IBS-PNU Joint Workshop on Particle Physics and Cosmology, Busan, South Korea, December 1, 2016.

Emergence of small numbers in complex systems and the origin of the electroweak scale, seminar, IBS-CTPU, Daejeon, South Korea, November 2, 2016.

Loop suppressed EWSB and naturally heavy superpartners, talk presented at the CERN TH Institute, Charting the Unknown, CERN, Geneva, Switzerland, August 11, 2016.

Loop suppressed EWSB and naturally heavy superpartners, talk presented at the 24th International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY 2016), The University of Melbourne, Melbourne, Australia, July 5, 2016.

Loop suppressed EWSB and naturally heavy stops, invited talk presented at CETUP Neutrino physics/Unification workshop, Deadwood, South Dakota, June 20, 2016.

Signatures of heavy Higgses in models with vectorlike fermions, invited talk presented at IBS-SNU joint workshop on particle physics, Seoul, South Korea, May 3, 2016.

Insensitive Unification, muon $g-2$ and Higgs decays, seminar, Korea Institute for Advanced Study, Seoul, Korea, December 23, 2015.

Heavy Higgs decays in models with vectorlike fermions, invited talk presented at Scalars 2015, Warsaw, Poland, December 5, 2015.

Unification and light vectorlike fermions, invited talk presented at International Workshop for the Next Generation Nucleon Decay and Neutrino Detector (NNN15) and Unification Day 2 (UD2), Stony Brook University, Stony Brook, New York, October 28, 2015.

Signatures of heavy Higgses in two Higgs doublet model with vectorlike leptons, invited talk presented at the MIAPP workshop: “Anticipating 14 TeV: Insights into Matter from the LHC and Beyond”,

Munich, Germany, July 3, 2015.

Insensitive Unification of Gauge Couplings, Muon $g-2$ and Higgs decays, seminar, Cornell University, Ithaca, New York, October 8, 2014.

Insensitive Unification of Gauge Couplings, Muon $g-2$ and Higgs decays, seminar, University of Cincinnati, Cincinnati, Ohio, September 23, 2014.

Vectorlike leptons, muon $g-2$ and Higgs decays, talk presented at the MITP workshop “Theory facing experiment on electroweak symmetry breaking, flavor and dark matter: where do we stand?”, Capri, Italy, May 22, 2014.

Effects of vectorlike leptons on Higgs decays, seminar, Seoul National University, Seoul, Korea, April 28, 2014.

Insensitive Unification of Gauge Couplings, Muon $g-2$ and Higgs decays, invited talk presented at Gunion Fest, UC Davis, Davis, California, March 28, 2014.

Insensitive Unification of Gauge Couplings, Muon $g-2$ and Higgs decays, seminar, University of Minnesota, Twin Cities, Minnesota, October 3, 2013.

A Tale of Scales, colloquium, Indiana University, Bloomington, Indiana, September 4, 2013.

Insensitive Unification of Gauge Couplings, Muon $g-2$ and Higgs decays, talk presented at Snowmass on the Pacific - KITP, University of California, Santa Barbara, California, May 30, 2013.

Insensitive Unification of Gauge Couplings, Muon $g-2$ and Higgs decays, talk presented at the KITP workshop “Exploring TeV Scale New Physics with LHC Data”, KITP, Santa Barbara, California, May 17, 2013.

Insensitive Unification of Gauge Couplings, Muon $g-2$ and Higgs decays, seminar, Seoul National University, Seoul, Korea, April 18, 2013.

Insensitive Unification of Gauge Couplings with Three Vector-like Families, invited talk presented at Neutrino Physics and Unification Session of the CETUP 2012, Deadwood, South Dakota, July 23, 2012.

Insensitive Unification of Gauge Couplings, talk presented at the TH Summer Institute on BSM Physics, CERN, Geneva, Switzerland, June 20, 2012.

Insensitive Unification of Gauge Couplings, seminar, LPSC, Grenoble, France, June 15, 2012.

Insensitive Unification of Gauge Couplings, talk presented at PHENO 2012 Symposium, Pittsburgh, Pennsylvania, May 8, 2012.

Insensitive Unification of Gauge Couplings, seminar, Indiana University, Bloomington, Indiana,

April 16, 2012.

Uncertainties in the Scale of Unification and Proton Lifetime in SUSY GUTs, invited talk presented at Fundamental Physics at the Intensity Frontier, Rockville, Maryland, December 1, 2011.

New Vector Boson Near the Z-pole and the Puzzle in Precision Electroweak Data, invited talk presented at the 19th International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY 2011), Fermilab, Batavia, Illinois, September 1, 2011.

Nonstandard Higgs decays in the NMSSM, “Collider Cross Talk” seminar, CERN, Geneva, Switzerland, August 18, 2011.

New Vector Boson Near the Z-pole and the Puzzle in Precision Electroweak Data, talk presented at the TH-LPCC Summer Institute on LHC Physics, CERN, Geneva, Switzerland, August 16, 2011.

Hidden Higgs Scenarios: new constraints and prospects at the LHC, Pusan National University, Pusan, Korea, April 22, 2011.

Hidden Higgs Scenarios new constraints and prospects at the LHC, seminar, Korea Institute for Advanced Study, Seoul, Korea, March 15 (2011).

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, Korea Institute for Advanced Study, Seoul, Korea, March 14 (2011).

Introduction to Higgs Physics II: Higgs Boson Beyond the Standard Model, seminar/lecture, Seoul National University, Seoul, Korea, March 4 (2011).

Introduction to Higgs Physics I: Higgs Boson in the Standard Model, seminar/lecture, Seoul National University, Seoul, Korea, March 2 (2011).

Light Charged Higgs in the NMSSM, invited talk presented at Prospects for charged Higgs Discovery at Colliders (CHARGED 2010), Uppsala, Sweden, September 27-30, 2010.

Hidden Higgs Scenarios, new constraints, and prospects at the LHC, invited talk presented at Physics at the LHC 2010, DESY, Hamburg, Germany, June 7-12, 2010.

Hidden Higgs Scenarios, new constraints, and prospects at the LHC, talk presented at Planck 2010, CERN, Geneva, Switzerland, June 1, 2010.

Many Light Higgs Bosons, new constraints and prospects at the LHC, invited talk presented at MCTP Spring Symposium on Higgs Boson Physics, University of Michigan, Ann Arbor, Michigan, May 14, 2010.

Hidden Higgs Scenarios, new constraints, and prospects at the LHC, talk presented at PHENO

2010 Symposium, University of Wisconsin, Madison, May 10, 2010.

Electroweak Symmetry Breaking, the Higgs Boson, and New Physics at the LHC, seminar, Ohio State University, Columbus, Ohio, March 1 (2010).

Electroweak Symmetry Breaking, the Higgs Boson, and New Physics at the LHC, colloquium, Illinois Institute of Technology, Chicago, IL, February 4 (2010).

Many light Higgs bosons in MSSM-like models, seminar, Purdue University, West Lafayette, IN , October 20 (2009).

Light Higgs bosons beyond the Standard Model, seminar, CERN, Geneva, Switzerland, August 20 (2009).

Many light Higgs bosons in the NMSSM, talk presented at “SM and BSM physics at the LHC” workshop, CERN, Geneva, Switzerland, August 3-28, 2009.

Light Higgs bosons beyond the Standard Model, invited talk presented at “Topical Issues in LHC Physics”, ICTP, Trieste, Italy, June 29 - July 2, 2009.

Many light Higgs bosons in the NMSSM, talk presented at PHENO 2009 Symposium, University of Wisconsin, Madison, May 11, 2009.

Many light Higgs bosons in MSSM-like models, seminar, University of Arizona, Tucson, Arizona, March 5 (2009).

Many light Higgs bosons in MSSM-like models, seminar, Columbia University, New York, NY, October 27 (2008).

Many light Higgs bosons in MSSM-like models, talk presented at “Beyond the Standard Model: from the Tevatron to the LHC” workshop, Fermilab, Batavia, Illinois, September 15-19, 2008.

Many light Higgs bosons in MSSM-like models, seminar, University of Michigan, Ann Arbor, Michigan, September 12 (2008).

Light Charged and CP-odd Higgses in MSSM-like models at small $\tan\beta$, talk presented at 34th International Conference on High Energy Physics (ICHEP 2008), Philadelphia, Pennsylvania, July 29 - August 5, 2008.

Light Higgs in Upsilon Decays, invited talk given at Inaugural meeting for upgraded Belle proto-collaboration, KEK, Japan, 3-4 July, 2008.

Light Charged and CP-odd Higgses in MSSM-like models at small $\tan\beta$, talk presented at the 16th International Conference on Supersymmetry and the Unification of Fundamental Interactions

(SUSY 2008), Seoul, Korea, June 16 - 21, 2008.

Natural EWSB, LEP puzzle, and a light Higgs at B-factories, seminar, UCLA, Los Angeles, California, April 14 (2008).

Supersymmetric Grand Unification, LEP puzzle, and the Higgs boson at the LHC, seminar, University of Hawaii, Hawaii, March 10 (2008).

Non-Standard Higgs Decays, motivation and experimental limits, invited talk presented at “Finding the Light, Hidden Higgs” workshop, UC Davis, Davis, California, March 7, 2008.

Supersymmetric Grand Unification, LEP puzzle, and the Higgs boson at the LHC, seminar, Indiana University, Bloomington, Indiana, February 18 (2008).

Supersymmetric Grand Unification, LEP puzzle, and the Higgs boson at the LHC, seminar, Triumf, Vancouver, BC, Canada, February 6 (2008).

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, Syracuse University, Syracuse, New York, January 30 (2008).

Supersymmetric Grand Unification, LEP puzzle, and the Higgs boson at the LHC, colloquium, Syracuse University, Syracuse, New York, January 29 (2008).

Non-Standard Higgs Decays and a light Higgs at B-factories, seminar, University of Chicago, Chicago, Illinois, January 14 (2008).

Unusual Supersymmetry from Natural Electroweak Symmetry Breaking, seminar, University of Chicago, Chicago, Illinois, January 14 (2008).

Manifestation of X and Y in Masses of Superpartners, talk presented at GUT 2007, ICTP, Miramare, Trieste, Italy, July 22-26, 2007.

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, Technical University, Munich, Germany, June 19 (2007).

Generic Higgs and SUSY Scenarios with Natural Electroweak Symmetry Breaking, talk presented at Planck 2007, Warsaw, Poland, June 9 - 13, 2007.

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, Argonne National Laboratory, Argonne, Illinois, March 21 (2007).

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, Northwestern University, Evanston, Illinois, March 19 (2007).

Neutralino Dark Matter – another naturalness problem, seminar, UC Irvine, Irvine, California,

March 14 (2007).

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, University of Maryland, College Park, Maryland, February 19 (2007).

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, Massachusetts Institute of Technology, Cambridge, Massachusetts, February 12 (2007).

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, Johns Hopkins University, Baltimore, Maryland, February 7 (2007).

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, talk presented at MIAMI 2006, Fort Lauderdale, Florida, 12-17 December 2006.

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, UC Irvine, Irvine, California, December 6 (2006).

Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, seminar, Texas A&M University, College Station, Texas, October 17 (2006).

Expectations for Unusual Higgs or SUSY from Natural Electroweak Symmetry Breaking, invited plenary talk presented at PASCOS 2006, Columbus, Ohio, 10-15 September 2006.

Natural Electroweak Symmetry Breaking in NMSSM and Higgs at 100 GeV, talk presented at SUSY 2006: 14th International Conference on Supersymmetry and the Unification of Fundamental Interactions, Irvine, California, 12-17 June 2006.

Natural Electroweak Symmetry Breaking in NMSSM and Higgs at 100 GeV, talk presented at Planck 2006: From the Planck scale to the ElectroWeak scale, Paris, France, 29 May - 2 June 2006.

Natural Electroweak Symmetry Breaking in NMSSM and Higgs at 100 GeV, talk presented at PHENO 2006 Symposium, University of Wisconsin, Madison, 15-17 May 2006.

Natural Electroweak Symmetry Breaking in NMSSM and Higgs at 100 GeV, seminar, University of Delaware, Newark, Delaware, April 27 (2006).

Natural Electroweak Symmetry Breaking in NMSSM and Higgs at 100 GeV, seminar, Princeton University, Princeton, New Jersey, April 24 (2006).

Natural Electroweak Symmetry Breaking in NMSSM and Higgs at 100 GeV, seminar, Institute for Advanced Study, Princeton, New Jersey, March 24 (2006).

Natural Electroweak Symmetry Breaking in NMSSM and Higgs at 100 GeV, seminar, Stanford

Linear Accelerator Center, Menlo Park, California, February 24 (2006).

Higgs where it should be, seminar, The Ohio State University, Columbus, Ohio, February 8 (2006).

Radiatively generated maximal mixing scenario for the Higgs mass and the least fine tuned MSSM, seminar, Institute for Advanced Study, Princeton, New Jersey, February 2 (2006).

Higgs where it should be, seminar, Fermilab, Batavia, Illinois, December 15 (2005).

Higgs where it should be, seminar, Argonne National Laboratory, Argonne, Illinois, December 12 (2005).

Escaping large fine tuning and little hierarchy problems in NMSSM and $h \rightarrow aa$ decays, seminar, Brookhaven National Laboratory, Upton, New York, October 19 (2005).

SO(10) Model for Fermion Masses: bi-large lepton mixing and leptogenesis, talk presented at SUSY 2005: 13th Annual International Conference on Supersymmetry and the Unification of Fundamental Interactions, Durham, England, 18-23 July 2005.

Escaping large fine tuning and little hierarchy problems in NMSSM and $h \rightarrow aa$ decays, talk presented at Argonne Theory Institute 2005, Argonne, Illinois, 9-13 May 2005.

Escaping large fine tuning and little hierarchy problems in NMSSM and $h \rightarrow aa$ decays, talk presented at PHENO 2005 Symposium, University of Wisconsin, Madison, 2-4 May 2005.

Escaping large fine tuning and little hierarchy problems in NMSSM and $h \rightarrow aa$ decays, LCWS 2005, Stanford University, Menlo Park, 18-22 March 2005.

Fermion masses and large neutrino mixing from singular matrices, talk presented at SUSY 2004: 12th Annual International Conference on Supersymmetry and the Unification of Fundamental Interactions, Tsukuba, Japan, 17-23 June 2004.

Fermion masses in maximally mixing world, seminar, Stanford Linear Accelerator Center, Menlo Park, California, May 12 (2004).

Fermion masses in maximally mixing world, seminar, The Ohio State University, Columbus, Ohio, May 3 (2004).

Wilson-line symmetry breaking on orbifolds, seminar, University of California, Davis, California, April 30 (2002).

Bi-large neutrino mixing and mass of the lightest neutrino from 3rd generation dominance, talk presented at PHENO 2004 Symposium, University of Wisconsin, Madison, 26-28 April 2004.

Unification of couplings and proton decay in SUSY GUTs, talk presented at SUSY 2003: SUSY in the Desert: 11th Annual International Conference on Supersymmetry and the Unification of

Fundamental Interactions, Tucson, Arizona, 5-10 June 2003.

GUTs in higher dimensions, talk presented at Argonne Theory Institute 2002: Supersymmetry, Higgs and Extra Dimensions, Argonne, Illinois, 9-13 September 2002.

SO(10) grand unification in five dimensions, seminar, Argonne National Laboratory, Argonne, Illinois, February 15 (2002).

Yukawa Unification in SO(10) SUSY GUTs, seminar, University of Maryland, College Park, Maryland, February 11 (2002).

Yukawa Unification in SO(10) SUSY GUTs, seminar, The Johns Hopkins University, Baltimore, Maryland, February 8 (2002).

SUSY and Higgs spectra from SO(10) Yukawa unification and from GUTs in higher dimensions, seminar, University of California, Berkeley, California, December 17 (2001).

SUSY and Higgs spectra from SO(10) Yukawa unification and from GUTs in higher dimensions, seminar, University of Washington, Seattle, Washington, December 11 (2001).

SUSY and Higgs spectra from SO(10) Yukawa unification and from GUTs in higher dimensions, seminar, Stanford Linear Accelerator Center, Menlo Park, California, November 29 (2001).

SUSY and Higgs spectra from SO(10) Yukawa unification and from GUTs in higher dimensions, seminar, University of California, Davis, California, November 27 (2001).

SO(10) grand unification in five dimensions, seminar, University of Florida, Tallahassee, Florida, November 5 (2001).

SO(10) grand unification in five dimensions, seminar, The Ohio State University, Columbus, Ohio, October 2001.

Yukawa coupling unification in SO(10) SUSY GUTs, talk presented at the 8th Adriatic Meeting “Particle physics in the New Millennium”, Dubrovnik, Croatia, September 2001.

Yukawa coupling unification in SO(10) SUSY GUTs, talk presented at the 9th International Conference on Supersymmetry and Unification of Fundamental Interactions, Dubna, Russia, June 2001.

Yukawa coupling unification and proton decay in SO(10) SUSY GUTs, seminar, Charles University, Prague, Czech Republic, May 2001.

Fermion masses and proton decay in SO(10) SUSY GUT, seminar, University of Bonn, Bonn, Germany, October 2000.

Proton decay in SO(10) SUSY GUT, talk presented at the Meeting of the Division of Particles and

Fields of the American Physical Society, Columbus, Ohio, August 2000.

Fermion masses, neutrino oscillations and proton decay in $SO(10)$ SUSY GUT, talk presented at TASI 2000, Boulder, Colorado, June 2000.

Fermion masses and neutrino oscillations in $SO(10)$ SUSY GUT with $D_3 \times U(1)$ family symmetry, seminar, The Ohio State University, Columbus, Ohio, October 1999.