

CURRICULUM VITAE

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Employment History

Aug. 2012 – present: Professor, Department of Physics,
University of Florida, Gainesville, FL, USA
Jul. 2007 – Aug. 2012: Associate Professor, Department of Physics,
University of Florida, Gainesville, FL, USA
Jan. 2002 – Jul. 2007: Assistant Professor, Department of Physics,
University of Florida, Gainesville, FL, USA
Jan. 2004 – Aug. 2004: Visiting Assistant Professor, Physics Department,
Cornell University, Ithaca, NY, USA
Aug. 2003 – Dec. 2003: Visiting Fellow, LEPP, Cornell University, Ithaca, NY, USA
2000 – Sept. 2002: Research Fellow, Theory Division, CERN, Geneva, Switzerland
1997 – 2000: Research Associate, Theoretical Physics Department,
Fermi National Accelerator Laboratory, Batavia, IL, USA
1992 – 1997: Teaching Assistant, Department of Physics and Astronomy,
Johns Hopkins University, Baltimore, MD, USA
1990 – 1992: Research Assistant, Laboratory of Theoretical Physics,
Joint Institute for Nuclear Research, Dubna, Russia

Education and Degrees

1992 – 1997 Johns Hopkins University, Department of Physics and Astronomy,
Baltimore, Maryland, USA
Ph.D. in Theoretical Particle Physics (August 1997)
M.A. in Physics and Astronomy (May 1994)
Research Advisor: Prof. Jonathan Bagger
1989 – 1992 Laboratory of Theoretical Physics, Joint Institute for Nuclear Research,
Dubna, Russia
Diploma Thesis in Theoretical Physics (June 1990)
Research Advisor: Prof. Victor I. Ogievetsky
1986 – 1990 Plovdiv University, Faculty of Physics, Plovdiv, Bulgaria
M.S. in Physics with highest honors (June 1990).

Honors and Awards

- 2018-21: University of Florida Term Professor
- 2018-21: University of Florida Research Foundation (UFRF) Professorship Award
- 2017: University of Florida, Office of Postdoctoral Affairs, Postdoc Mentoring Award
- 2015: Fellow, American Physical Society
- 2013: Host, LHC Theory Initiative postdoctoral fellow (Dr. Doojin Kim)
- 2012: University of Florida, Graduate School, Advisor/Mentoring Award
- 2011: Host, LHC Theory Initiative postdoctoral fellow (Dr. Won Sang Cho)
- 2004: Outstanding Junior Investigator award, Department of Energy, USA
- 1990: College Gold Medal from the Bulgarian Ministry of Education
- 1989: First Prize, National College Student Physics Seminar, Plovdiv'89
- 1986: High-School Gold Medal from the Bulgarian Ministry of Education
- 1985: First Prize, National High-School Physics Thesis Competition
- 1985: First Prize, National High-School Math Olympiad (problem solving)

Community Service

- 2002 – present **Member**, CMS Collaboration, LHC Project, CERN
- 2023 – present **Member**, Machine Learning Working Group, Ariel Consortium
- 2021 – 2022 **Organiser**, “Fundamental Physics and Machine Learning” workshop, Aspen CO
- 2021 – 2023 **Member**, DPF Mentoring Award Committee, American Physical Society
- 2018 **Chair**, DPF Nominating Committee, American Physical Society
- 2017 **Member**, DPF Nominating Committee, American Physical Society
- 2017 – 2018 **Organiser**, Twelfth MC4BSM Workshop, Durham, UK, April 18-21, 2018
- 2016 – 2017 **Organiser**, Eleventh MC4BSM Workshop, Stanford University, May 11-13, 2017
- 2016 **Organiser**, Fourth UF-FSU pheno workshop, Tallahassee FL, April 28-29 2016
- 2015 – 2016 **Member**, Sakurai Award Selection Committee, American Physical Society
- 2015 – 2016 **Organiser**, Tenth MC4BSM Workshop, Beijing, China, July 20-24, 2016
- 2014 – 2015 **Organiser**, Ninth MC4BSM Workshop, Fermilab, May 18-21, 2015
- 2015 **Member**, Early Career Program review panel, DOE, February 2015
- 2013 – 2014 **Organiser**, Eighth MC4BSM Workshop, Daejeon, South Korea, May 19-23, 2014
- 2012 – 2013 **Convener**, CF4 ‘Dark Matter Complementarity’ group, Snowmass 2013
- 2012 – 2013 **Organiser**, Seventh MC4BSM Workshop, DESY, Germany, April 18-20, 2013
- 2011 – 2012 **Organiser**, Sixth MC4BSM Workshop, Cornell University, March 22-24, 2012
- 2011 – 2012 **Organiser**, theory workshop at the Aspen Center for Physics, summer 2012
- 2010 – 2011 **Program Director**, TASI summer school, Boulder CO, June 2011
- 2009 – 2010 **Organiser**, Fifth MC4BSM Workshop, Copenhagen, Denmark, April 14-16, 2010
- 2010 **Convener**, ‘Theory’ parallel session, USCMS Meeting, Brown U., May 5-6, 2010
- 2010 **Organiser**, Third UF-FSU pheno workshop, Gainesville FL, April 22, 2010
- 2009 **Convener**, ‘Missing energy’ working group, Linear Collider Workshop, 2009
- 2009 **Member**, OJI review panel, DOE
- 2008 – 2009 **Organiser**, Fourth MC4BSM Workshop, UC Davis, March, 2009
- 2008 **Member**, International Organising Committee, TeVPA conference, Beijing, 2008
- 2008 **Convener**, ‘Collider Phenomenology’ session, SUSY 2008 conference, Seoul, Korea

2007 – 2008 **Organiser**, Third MC4BSM Workshop, CERN, March 10-11, 2008
 2007 **Convener**, ‘Physics Signature-I’ working group, Linear Collider Workshop, 2007
 2007 **Member**, International Organising Committee, TeVPA conference, Venice, 2007
 2006 – 2007 **Organiser**, Second MC4BSM Workshop, Princeton, March 21-24, 2007
 2005 – 2006 **Member**, Large Hadron Collider-Linear Collider HEPAP subpanel
 2005 – 2006 **Organiser**, First MC4BSM Workshop, Fermilab, March 20-21, 2006
 2006 **Convener**, ‘Colliders’ session, SUSY 2006 conference, UC Irvine, CA
 2006 **Convener**, ‘SUSY particles’ session, Linear Collider Workshop, 2006
 2005 **Organiser**, Second UF-FSU pheno workshop, Gainesville FL, Nov. 11, 2005
 2005 **Contributor**, ‘LHC Theory Initiative’ white paper and grant proposal
 2005 **Convener**, ‘SUSY/Higgs Searches’ session, SUSY 2005 conference, Durham, UK
 2004 – 2005 **Organiser**, theory workshop at the Aspen Center for Physics, summer 2005
 2004 **Organiser**, First UF-FSU pheno workshop, Tallahassee FL, Dec. 1, 2004
 2003 – 2006 **Convener**, Cornell study group of the ‘Cosmology & LC’ working group
 2001 – 2002 **Convener**, ‘Higgs + SUSY’ working group, Snowmass 2001
 2001 – 2002 **Convener**, ‘Indirect Investigations of SUSY’ working group, Snowmass 2001
 2000 – 2001 **Convener**, “TeV colliders” workshop, Les Houches, May 21 - June 1, 2001
 2000 – 2004 **Member**, CLIC Physics Study Group at CERN
 1999 – 2000 **Member**, Fermilab Linear Collider Physics Study Group

University and Department Service

Aug 2021 – present AI Committee - chair
 Aug 2022 – present Graduate Recruiting and Admissions Committee - member
 Aug 2021 – present Colloquium Committee - member
 Mar 2022 – Jan 2023 Preliminary Exam Committee - member
 May 2022 – Aug 2022 H. Ray Promotion Committee - member
 Aug 2020 – Aug 2022 Advisory Committee for Teaching - member
 Apr 2005 – Aug 2022 High energy theory representative to the IFT board
 Jan 2022 – Apr 2022 W. Xue 3-year review Committee - member
 Oct 2021 – Nov 2021 Proposal reviewer for UF Limited Programs
 Aug 2020 – Aug 2021 CMS Faculty Search Committee - member
 May 2020 University of Florida AI Initiative town hall,
 invited speaker on behalf of the College of Liberal Arts and Sciences
 Mar 2020 – Aug 2020 Preliminary Exam Committee - member
 Aug 2019 – Aug 2020 W. Xue Mentoring Committee - member
 Aug 2019 – Jan 2020 Preliminary Exam Committee - member
 Aug 2019 – Jan 2020 Department Advisory Committee - member
 Aug 2018 – Aug 2019 Colloquium committee - member
 Aug 2018 – Aug 2019 Space committee - member
 Aug 2018 – Aug 2019 Department Advisory Committee - chair
 Aug 2017 – Aug 2019 Salary Review Committee - member
 Apr 2019 – Jul 2019 Faculty Search Committee, QIS visiting assistant professor - member
 Jan 2018 – May 2018 High energy seminar organizer (Spring 2018)

Aug 2017 – Mar 2018	High Energy Theory Faculty Search Committee - chair
Aug 2017 – Jan 2018	Preliminary Exam Committee - member
Aug 2015 – Aug 2017	Department Advisory Committee (DAC) - member
Aug 2007 – Aug 2016	Computing Committee - member
April 2016	Rick Field retirement committee (chair)
Jan 2016 – May 2016	High energy seminar organizer (Spring 2016)
Aug 2013 – Aug 2016	Graduate Recruiting and Admissions Committee (GRAC) - chair
Aug 2014 – Aug 2015	High B/T Faculty Search Committee - member
Jan 2014 – Aug 2014	Preliminary Exam Committee - member
Jan 2013 – May 2013	Organiser of the High Energy Physics seminars
Aug 2011 – Aug 2013	College Nominating Committee (member)
Aug 2009 – Aug 2013	Graduate Recruiting and Admissions Committee (GRAC) - member
Jan 2012 – Aug 2012	Preliminary Exam Committee - member
Aug 2011 – Apr 2012	Experimental Faculty Search Committee - member
Aug 2010 – Aug 2012	Department Advisory Committee (DAC) - member
Aug 2010 – Jan 2011	Preliminary Exam Committee - member
May 2009	Spring 2009 Commencement Ceremony - marshal
Aug 2008 – Jan 2009	Preliminary Exam Committee - member
Jan 2007 – Aug 2007	Preliminary Exam Committee - member
Jun 2006 – Dec 2006	Organiser of the High Energy Physics seminars
Apr 2005 – Aug 2006	Computing Committee - member
Aug 2004 – Aug 2006	Graduate Recruitment and Admissions Committee - member
Aug 2005 – May 2006	Organiser of the LHC/CMS weekly journal club
Dec 2005 – Feb 2006	IFT Postdoc Search Committee (high energy) - member
Dec 2004 – Feb 2005	IFT Postdoc Search Committee (astro) - member
Aug 2004 – Apr 2005	Experimental Biophysics Faculty Search Committee - member
Apr 2004 – Aug 2004	Preliminary Exam Committee - member
Nov 2002 – Aug 2003	Preliminary Exam Committee - member
Jan 2002 – Aug 2003	Graduate Recruitment and Admissions Committee - member
Jan 2002 – Aug 2003	Computing Committee - member
Jan 2003 – May 2003	Experimental Astroparticle Faculty Search Committee - member
Jan 2003 – May 2003	Organiser of the High Energy Physics seminars
Jan 2003 – Feb 2003	IFT Postdoc Search Committee (high energy) - member
Jan 2002 – Feb 2003	“PierreFest” organizing committee - member
May 2002	Spring 2002 Commencement Ceremony - marshal

Grants and Research Funding

Apr 2021 – Mar 2025	UF task T: Theory and phenomenology (DoE)	\$1,110,000 (+3 co-PIs)
Apr 2020 – Mar 2021	UF task T: Theory and phenomenology (DoE)	\$122,000 (+4 co-PIs)
Jun 2019 – Mar 2020	UF task T: Theory and phenomenology (DoE)	\$86,000 (+3 co-PIs)
Apr 2018 – Mar 2019	UF task T: Theory and phenomenology (DoE)	\$210,000 (+3 co-PIs)
Apr 2017 – Mar 2018	UF task T: Theory and phenomenology (DoE)	\$210,000 (+3 co-PIs)
Jan 2017 – Dec 2017	UFII Graduate Student Fellowship (UF)	\$35,000
Apr 2016 – Mar 2017	UF task T: Theory and phenomenology (DoE)	\$210,000 (+3 co-PIs)
Apr 2015 – Mar 2016	UF task T: Theory and phenomenology (DoE)	\$457,000 (+3 co-PIs)
Aug 2013 - Jul 2015	Host faculty, LHCTI postdoctoral fellowship (NSF)	\$150,000 (PI)
Apr 2014 – Mar 2015	UF task T: Theory and phenomenology (DoE)	\$467,000 (+3 co-PIs)
Jul 2013 – Mar 2014	UF task T: Theory and Phenomenology (DoE)	\$316,000 (+4 co-PIs)
Aug 2011 - Jul 2013	Host faculty, LHCTI postdoctoral fellowship (NSF)	\$150,000 (PI)
Jul 2012 – Jun 2013	UF task T2: HET Phenomenology (DoE)	\$330,000 (+2 co-PIs)
Jul 2011 – Jun 2012	UF task T2: HET Phenomenology (DoE)	\$330,000 (+2 co-PIs)
Jul 2010 – Jun 2011	UF task T2: HET Phenomenology (DoE)	\$330,000 (+2 co-PIs)
Mar 2010 – Jun 2010	UF task A: Elementary Particle Theory (DoE)	\$130,000 (+3 co-PIs)
Mar 2009 – Feb 2010	UF task A: Elementary Particle Theory (DoE)	\$410,000 (+3 co-PIs)
Mar 2008 – Feb 2009	UF Task A: Elementary Particle Theory (DoE)	\$395,000 (+3 co-PIs)
Mar 2007 – Feb 2008	UF task J: OJI award (DoE)	\$55,000 (PI)
Mar 2007 – Feb 2008	UF task A: Elementary Particle Theory (DoE)	\$320,000 (+3 co-PIs)
Mar 2006 – Feb 2007	UF task J: OJI award (DoE)	\$55,000 (PI)
Mar 2006 – Feb 2007	UF task A: Elementary Particle Theory (DoE)	\$320,000 (+3 co-PIs)
Mar 2005 – Feb 2006	UF task J: OJI award (DoE)	\$55,000 (PI)
Mar 2005 – Feb 2006	UF task A: Elementary Particle Theory (DoE)	\$340,000 (+3 co-PIs)
Mar 2004 – Feb 2005	UF task J: OJI award (DoE)	\$55,000 (PI)
Mar 2004 – Feb 2005	UF task A: Elementary Particle Theory (DoE)	\$345,000 (+3 co-PIs)
Mar 2003 – Feb 2004	UF task A: Elementary Particle Theory (DoE)	\$360,000 (+3 co-PIs)
Jun 2001 – Jul 2007	Startup funds from the University of Florida	\$160,000

Proposal reviewer: Department of Energy (Office of Science); National Science Foundation; Research Corporation.

Professional memberships: American Physical Society, Bulgarian Physical Society.

Referee: Physical Review Letters, Physical Review D, Journal of High Energy Physics, Nuclear Physics B, Astroparticle Physics, Physics Letters B, Modern Physics Letters A, International Journal of Modern Physics A.

Teaching Activities

Spring 2024	PHY4222: Mechanics II
Spring 2023	PHY7097: Special Topics (High Energy Theory)
Fall 2022	PHY7097: Machine Learning
Spring 2022	PHY4905: Machine Learning
Fall 2021	PHY7097: Machine Learning
Spring 2021	PHY4905: Machine Learning
Fall 2020	PHY7097: Machine Learning
Fall 2020	PHY7097: Quantum Computing
Fall 2019	PHY7097: Quantum Field Theory 1.5
Fall 2019	PHY3221: Mechanics II
Spring 2019	PHY4222: Mechanics II
Fall 2018	PHY3221: Mechanics I
Spring 2018	PHY4222: Mechanics II
Fall 2017	PHY3221: Mechanics I
Spring 2016	PHZ7359: Standard Model II
Fall 2015	PHZ6358: Standard Model I
Spring 2015	PHY7669: Quantum Field Theory II
Fall 2014	PHY6648: Quantum Field Theory I
Spring 2014	PHZ7359: Standard Model II
Fall 2013	PHZ6358: Standard Model I
Spring 2013	PHY7669: Quantum Field Theory II
Fall 2012	PHY6648: Quantum Field Theory I
Spring 2012	PHZ7359: Standard Model II
Fall 2011	PHZ6358: Standard Model I
Spring 2011	MET1010: Introduction to Weather
Fall 2010	PHY3221: Mechanics I
Spring 2010	MET1010: Introduction to Weather
Fall 2009	PHY3221: Mechanics I
Spring 2009	MET1010: Introduction to Weather
Fall 2008	MET1010: Introduction to Weather
Spring 2008	MET1010: Introduction to Weather
Fall 2007	MET1010: Introduction to Weather
Spring 2007	MET1010: Introduction to Weather
Fall 2006	MET1010: Introduction to Weather
Spring 2006	PHY2054: Physics 2 w/o Calculus, discussion leader (2 sections \times 2)
Fall 2005	PHY6648: Quantum Field Theory I
Spring 2005	PHY7669: Quantum Field Theory II
Fall 2004	PHY6648: Quantum Field Theory I
Spring 2004	PHYS 646: High Energy Particle Physics (graduate level, Cornell University)
Spring 2003	PHY4222: Mechanics II
Spring 2002	PHY2048: Physics 1 with Calculus, discussion leader (5 sections, once a week)

Invited Lectures at Summer Schools

Sept 2023	lectures on “Machine-Learned Symmetries”, “Statistical Methods and Machine Learning in High Energy Physics” summer school (graduate level), International Centre for Theoretical Sciences, Tata Institute for Fundamental Research, India.
July 2020	Lectures and tutorials on machine learning applied to a high-energy physics dataset, QuarkNet high school teacher workshop, Gainesville FL.
June 2014	lecturer, graduate level, Theoretical Advanced Studies Institute (TASI 2014), University of Colorado, Boulder, CO.
June 2011	Program Director, graduate level, TASI summer school, Boulder, CO.
January 2011	lecturer, graduate level, ‘MIT Physics Department Retreat’, Plymouth, NH.
June 2009	lecturer, graduate level, ‘Particle Physics in the LHC Era’ summer school, International Centre for Theoretical Physics (ICTP), Trieste, Italy.
July 2007	lecturer, graduate level, ‘Prospects in Theoretical Physics’ summer program, Institute for Advanced Study, Princeton.
July 2005	lecturer, graduate level, ‘Prospects in Theoretical Physics’ summer program, Institute for Advanced Study, Princeton.
August 2004	lecturer, graduate level, XXXII SLAC Summer Institute, SLAC.
June 2002	lecturer, graduate level, Theoretical Advanced Studies Institute (TASI 2002), University of Colorado, Boulder, CO.

Voluntary Activities with Students

Fall 2023	Faculty sponsor of one of the winning teams (“The Gators”) in the 2023 Ariel Machine Learning Data Challenge, European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), Torino, Italy.
Fall 2022	Faculty sponsor of the first-place team “The Gators” in the 2022 Ariel Machine Learning Data Challenge, NeurIPS conference, New Orleans. The win came with a cash prize of \$2,500.
Spring 2022	Faculty sponsor of the winning undergraduate team in the UF’s Artificial Intelligence (AI) Days 24-hour Hackathon. The two members of the team were at the time enrolled in my Machine Learning course. The team won first place, including the cash prize of \$10,000.
Summer 2020	Mentor, High School Physics Journal Club.
Spring 2017	Mentor, Fulbright international exchange student Amalia Rodriguez, Universidad de Antioquia, Colombia.
2015-2020	Volunteer cross-country coach, Lincoln Middle School, Gainesville FL.
July 2011	Mentor for the NSF Research Experience for Undergraduates (REU) Program at the University of Florida: Juan Contreras (UF).
Spring 2011	Thesis advisor, undergraduate exchange student: Lisa Edelhauser (University of Wurzburg, Germany).
January 2005	Judge, Lincoln Middle School Science Fair, Gainesville FL.
July 2003	REU mentor: Jonathan Blender (Cornell).
Spring 2003	Thesis advisor, undergraduate exchange student: Tanju Gleisberg (TU Dresden, Germany). Resulting publication: JHEP09 (2003) 001.

Placement of Graduate Students under Supervision

Name	Duration	Position after UF	Current position
Kyoungchul Kong	2001 – 2006	postdoc, Fermilab (theory)	senior faculty, U. Kansas
R. Craig Group	2002 – 2006	postdoc, Fermilab (CDF)	senior faculty, U. Virginia
Michael Burns	2005 – 2009	Industry	faculty, Austin Comm. College
Ronald Remington	2006 – 2011	postdoc, U. Florida	manager, Lockheed Martin
Myeonghun Park	2006 – 2011	postdoc, CERN (theory)	faculty, SeoulTech, South Korea
Gaurab Saranghi	2007 – 2012	postdoc, MPI Leipzig	postdoc, MPI Leipzig
Dipsikha Debnath	2012 – 2018	postdoc, Rutgers University	data analyst, Nielsen Consulting
Prasanth Shyamsundar	2014 – 2020	postdoc, Fermilab	postdoc, Fermilab
Alex Roman	2018 – 2023	adjunct professor, New College of Florida	

Placement of Postdocs under Supervision

Name	Duration	Position after UF	Current position
Asesh Datta	2002 – 2004	postdoc, U. Michigan	senior faculty, HRI India
Andreas Birkedal	2003 – 2005	postdoc, UC Santa Cruz	analyst, finance industry
Lisa Everett	2003 – 2006	junior faculty, U. Wisconsin	senior faculty, U. Wisconsin
Hye-Sung Lee	2005 – 2008	postdoc, UC Riverside	faculty, KAIST, South Korea
Salah Nasri	2006 – 2008	faculty, U. of UAE	faculty, U. of UAE
Christoph Luhn	2006 – 2008	postdoc, Southampton	industry
Partha Konar	2007 – 2010	junior faculty, PRL India	faculty, PRL India
Won Sang Cho	2011 – 2013	postdoc, IBS, South Korea	faculty, SNU, South Korea
James Gainer	2012 – 2015	postdoc, U. of Hawaii	software engineer, LinkedIn
Doojin Kim	2013 – 2016	postdoc, CERN (theory)	postdoc, Texas A&M University
Sarunas Verner	2022 –		

LIST OF PUBLICATIONS

As a member of the CMS collaboration since 2002, I have been listed as an author of over 1200 CMS papers, which can be extracted from the iNSPIRE high-energy physics database by searching “find author Matchev and collaboration CMS”. The results are at this link and will not be reproduced here.

Listed below are the remaining non-CMS papers in theory or phenomenology. Their citation summary statistics from iNSPIRE is as follows¹:

Categories	All publications	Refereed only
Renowned papers (500+ cites):	8	6
Famous papers (250-499 cites):	7	3
Very well-known papers (100-249):	25	21
Well-known papers (50-99):	29	25
Known papers (10-49):	51	30
Less known papers (1-9):	38	22
Unknown papers (0):	8	1
Number of citable papers analyzed:	166	108
Total number of citations:	16,221	12,351
Average citations per paper:	97.7	114.4
h-index	61	53

I. Refereed Papers in Journals and Conference Proceedings

121. E. B. Unlu, M. C. Cara, G. R. Dahale, Z. Dong, R. T. Forestano, S. Gleyzer, D. Justice, K. Kong, T. Magorsch, K. T. Matchev and K. Matcheva, *Hybrid Quantum Vision Transformers for Event Classification in High Energy Physics*, submitted to the special issue “Computational Aspects of Machine Learning and Quantum Computing”, **Axioms**, section “Mathematical Analysis”, [arXiv:2402.00776 [quant-ph]].

citations: 0

120. K. T. Matchev, K. Matcheva, P. Ramond and S. Verner, *Exploring the Truth and Beauty of Theory Landscapes with Machine Learning*, submitted to **Physics Letters B**, [arXiv:2401.11513 [hep-ph]].

citations: 0

119. M. C. Cara, S. Gleyzer, K. T. Matchev, K. Matcheva, R. T. Forestano, Eyup B. Unlu, K. Kong, Z. Dong, T. Magorsch, G. R. Dahale, R. Zhang and C. Cheng, *Quantum Vision Transformers for Quark-Gluon Classification*, submitted to the special issue “Computational Aspects of Machine Learning and Quantum Computing”, **Axioms**, section “Mathematical Analysis”.

citations: 0

118. Z. Dong, M. C. Cara, G. R. Dahale, R. T. Forestano, S. Gleyzer, D. Justice, K. Kong, T. Magorsch, K. T. Matchev, K. Matcheva and Eyup B. Unlu, $\mathbb{Z}_2 \times \mathbb{Z}_2$ *Equivariant Quantum*

¹Note that papers on exoplanets appear on the astro-ph.EP arxiv, which is not tracked by iNSPIRE.

Neural Networks: Benchmarking against Classical Neural Networks, submitted to the special issue “Computational Aspects of Machine Learning and Quantum Computing”, **Axioms**, section “Mathematical Analysis”, [arXiv:2311.18744 [quant-ph]].

citations: 0

117. R. T. Forestano, M. C. Cara, G. R. Dahale, Z. Dong, S. Gleyzer, D. Justice, K. Kong, T. Magorsch, K. T. Matchev, K. Matcheva and Eyup B. Unlu, *A Comparison Between Invariant and Equivariant Classical and Quantum Graph Neural Networks*, submitted to the special issue “Computational Aspects of Machine Learning and Quantum Computing”, **Axioms**, section “Mathematical Analysis”, [arXiv:2311.18672 [quant-ph]].

citations: 0

116. K. T. Matchev, K. Matcheva, P. Ramond and S. Verner, *Seeking Truth and Beauty in Flavor Physics with Machine Learning*, accepted in the “AI for Scientific Discovery: From Theory to Practice” workshop, **2023 NeurIPS conference**, [arXiv:2311.00087 [hep-ph]].

citations: 1

115. E. B. Unlu, R. T. Forestano, K. T. Matchev, and K. Matcheva, *Reproducing Bayesian Posterior Distributions for Exoplanet Atmospheric Parameter Retrievals with a Machine Learning Surrogate Model*, to appear in the proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), September 2023, **Springer Computer Science Proceedings**, [arXiv:2310.10521 [astro-ph.EP]].

citations: 1.

114. P. Shyamsundar, J. L. Scott, S. Mrenna, K. T. Matchev and K. Kong, *Variance Reduction via Simultaneous Importance Sampling and Control Variates Techniques Using VEGAS*, **SciPost Physics Codebases** (under review), [arXiv:2309.12369 [hep-ph]].

citations: 0.

113. R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu, and S. Verner, *Identifying the Group-Theoretic Structure of Machine-Learned Symmetries*, **Physics Letters B** 847, 138306 (2023) doi:10.1016/j.physletb.2023.138306 [arXiv:2309.07860 [hep-ph]].

citations: 1

112. R. T. Forestano, K. T. Matchev, K. Matcheva, and E. B. Unlu, *Searching for Novel Chemistry in Exoplanetary Atmospheres using Machine Learning for Anomaly Detection*, **The Astrophysical Journal** vol. 958, no. 2, 2023. doi:10.3847/1538-4357/ad0047, [arXiv:2308.07604 [astro-ph.EP]].

citations: 0

111. R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu, and S. Verner, *Accelerated Discovery of Machine-Learned Symmetries: Deriving the Exceptional Lie Groups G_2 , F_4 and E_6* , **Physics Letters B** 847, 138266 (2023) doi:10.1016/j.physletb.2023.138266 [arXiv:2307.04891 [hep-th]].

citations: 2

110. R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu, and S. Verner, *Discovering Sparse Representations of Lie groups with Machine Learning*, **Physics Letters B**, vol. 844, 2023, doi:10.1016/j.physletb.2023.138086, [arxiv.2302.05383 [hep-ph]].

citations: 5

- 109.** A. Roman, R. T. Forestano, K. T. Matchev, K. Matcheva, and E. B. Unlu, *Oracle-Preserving Latent Flows*, **Symmetry**, vol. 15, no. 7, p. 1352, 2023, doi:10.3390/sym15071352, [arXiv:2302.00806 [cs.LG]].
citations: 5
- 108.** R. T. Forestano, K. T. Matchev, K. Matcheva, A. Roman, E. B. Unlu and S. Verner, *Deep Learning Symmetries and Their Lie Groups, Algebras, and Subalgebras from First Principles*, **Machine Learning: Science and Technology** 4, no.2, 025027 (2023), doi:10.1088/2632-2153/acd989, [arXiv:2301.05638 [hep-ph]].
citations: 8
- 107.** K. H. Yip et al., *Ariel Data Challenge 2022: Lessons Learned from Ariel Data Challenge 2022 - Inferring Physical Properties of Exoplanets From Next-Generation Telescopes*, **Proceedings of Machine Learning Research**, volume 220 (in press).
citations: NA
- 106.** Z. Dong, K. Kong, K. T. Matchev and K. Matcheva, *Is the machine smarter than the theorist: Deriving formulas for particle kinematics with symbolic regression*, **Physical Review D** 107, no.5, 055018 (2023) doi:10.1103/PhysRevD.107.055018 [arXiv:2211.08420 [hep-ph]].
citations: 5
- 105.** K. Kong, K. T. Matchev, S. Mrenna and P. Shyamsundar, *New Machine Learning Techniques for Simulation-Based Inference: Inference Static Nets, Kernel Score Estimation, and Kernel Likelihood Ratio Estimation*, **SciPost Physics Codebases**, 14 (2023), doi:10.21468/SciPostPhysCodeb.14, [arXiv:2210.01680 [stat.ML]].
citations: 2
- 104.** Y. You, J. Smolinsky, W. Xue, K. T. Matchev, K. Gunther, Y. Lee and T. Saab, *Signatures and detection prospects for sub-GeV dark matter with superfluid helium*, **JHEP** 07, 009 (2023), doi:10.1007/JHEP07(2023)009, [arXiv:2208.14474 [hep-ph]].
citations: 7
- 103.** R. Franceschini, D. Kim, K. Kong, K. T. Matchev, M. Park and P. Shyamsundar, *Kinematic variables and feature engineering for particle phenomenology*, **Reviews of Modern Physics** 95, no.4, 045004 (2023), doi:10.1103/RevModPhys.95.045004 [arXiv:2206.13431 [hep-ph]].
citations: 13
- 102.** K. T. Matchev, K. Matcheva, and A. Roman, *Transverse Vector Decomposition Method for Analytical Inversion of Exoplanet Transit Spectra*, **The Astrophysical Journal**, vol. 939, no. 2, (2022), doi:10.3847/1538-4357/ac82f3, [arxiv:2203.06299 [astro-ph.EP]].
citations: 3
- 101.** K. T. Matchev, K. Matcheva, and A. Roman, *Unsupervised Machine Learning for Exploratory Data Analysis of Exoplanet Transmission Spectra*, **The Planetary Science Journal**, vol. 3, no. 9, (2022) 205, doi:10.3847/PSJ/ac880b, [arXiv:2201.02696 [astro-ph.EP]].
citations: 6
- 100.** K. T. Matchev, K. Matcheva, and A. Roman, *Analytical Modeling of Exoplanet Tran-*

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II. Books

3. K. Matchev, K. Kong, *“Modern Collider Phenomenology”*, Cambridge University Press,

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2. K. Matchev and T. Tait (editors), “*TASI 2011: The Dark Secrets of the Terascale*”, Proceedings of the TASI 2011 summer school, Boulder, Colorado, USA, June 6 - July 11, 2011, World Scientific, 2013.

1. K. Kong, K. Matchev and G. Servant, “*Extra Dimensions at the LHC*”, a book chapter in: Bertone, G. (ed.): “*Particle Dark Matter: Observations, Models and Searches*”, Cambridge University Press, 2010, pp. 306-324, arXiv:1001.4801 [hep-ph].

III. Unrefereed Publications

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8. M. Carena *et al.* [Higgs Working Group], *Physics at Run II: Report of the Tevatron Higgs Working Group*, report of the Higgs Working Group for the Tevatron Run II Workshop, [arXiv:hep-ph/0010338 [hep-ph]].

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7. R. L. Culbertson *et al.* [SUSY Working Group], *Physics at Run II: Low Scale and Gauge Mediated Supersymmetry Breaking at the Fermilab Tevatron Run II*, report of the Gauge Mediation/Low Scale SUSY Breaking Working Group for the Tevatron Run II Workshop, [arXiv:hep-ph/0008070 [hep-ph]].

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6. V. Barger *et al.* [SUGRA Working Group], *Physics at Run II: Report of the SUGRA*

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5. J. L. Feng, K. T. Matchev and T. Moroi, *Naturalness reexamined: Implications for supersymmetry searches*, Proceedings of the VII International Symposium on Particles, Strings and Cosmology (PASCOS 99), Granlibakken, Tahoe City, California, December 10-16 1999, [arXiv:hep-ph/0003138 [hep-ph]].

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4. J. D. Lykken and K. T. Matchev, *Tau jet signals for supersymmetry at the Tevatron*, summary of talks given at the Run II SUSY/Higgs Workshop, Fermilab, May - November 1998; the Higgs and Supersymmetry conference, Gainesville, FL, March 7-11, 1999, and the International Symposium on Phenomenology for the Third Millennium (PHENO 99), Madison, WI, April 14-17, 1999; [arXiv:hep-ex/9910033 [hep-ex]].

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3. K. T. Matchev, *Precision corrections and supersymmetric unification*, Ph.D. Thesis, Johns Hopkins University, August 1997, UMI-98-21162.

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2. J. Bagger, K. T. Matchev and D. Pierce, *Precise predictions for masses and couplings in the minimal supersymmetric standard model*, in ‘Beyond the Standard Model IV’, Proceedings of Tahoe City 1994, Lake Tahoe, CA, 13-18 December, 1994, p. 363; [arXiv:hep-ph/9503422 [hep-ph]].

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1. J. Bagger, K. T. Matchev and D. Pierce, *Complete weak scale threshold corrections in the minimal supersymmetric standard model*, in ‘Physics from the Planck Scale to the Electroweak Scale’, Proceedings of the Joint U.S.-Polish Workshop on Physics from Planck Scale to Electro-Weak Scale (SUSY 94), Warsaw, Poland, 21-24 September 1994, p. 162; [arXiv:hep-ph/9501378 [hep-ph]].

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Invited Presentations at Physics Conferences and Workshops

78. “*Identifying the Group-Theoretic Structure of Machine Learned Symmetries*”, invited plenary talk, Miami conference, Fort Lauderdale, FL, December 19, 2023.
77. “*Exploring dark matter shadows with AI*”, plenary talk (in person) at the Mitchell Conference, Texas A&M University, College Station, May 25, 2022.
76. “*Mass variables for SUSY searches (a journey through Luc’s legacy)*”, invited plenary talk, CMS workshop on Mass variables for SUSY searches in memory of Luc Pape, May 11, 2021.
75. “*Spatial point pattern analysis of LHC data (kinematics variables approach)*”, 2021 APS April Meeting, April 18, 2021.
74. “*Optimal Invariant Mass Variables for SUSY-like Missing Energy Events*”, parallel talk, Pheno 2017 Symposium, University of Pittsburgh, Pittsburgh PA, May 9, 2017.
73. “*Discovering New Physics with Voronoi Tessellations*”, invited plenary talk, KITPC workshop, Beijing, China, July 26, 2016.
72. “*Discovering New Physics with Voronoi Tessellations*”, invited plenary talk, Miami conference, Fort Lauderdale, December 19, 2015.
71. “*New Physics Discoveries at the LHC and Beyond*”, invited plenary talk, CMS RDMS conference, Varna, Bulgaria, August 25-30, 2015.
70. “*MC4BSM summary*”, plenary talk, CMS LPC data challenge workshop, Fermilab, May 21 2015.
69. “*Matrix Element Techniques (mini-review)*”, invited plenary talk, Pheno Conference, Pittsburgh, May 5, 2015.
68. “*Tutorial sessions*”, MC4BSM workshop, Daejeon, South Korea, May 18-23 2014.
67. “*Event Generators for Particle Physics*”, invited plenary talk, APS Meeting, Savannah, GA, April 8, 2014.
66. “*Possible Dark Matter Projects*”, invited plenary talk, Division of Particles and Fields APS Meeting, UC Santa Cruz, August 14, 2013.
65. “*From Feynman Diagrams to Graphs*”, invited plenary talk, LoopFest 2013 international conference, Tallahassee, May 14 2013.
64. “*CF4 Summary*”, plenary summary, Cosmic Frontier Workshop, SLAC, March 8 2013.
63. “*Complementarity Document Discussion*”, Cosmic Frontier Workshop, SLAC, March 6 2013.
62. “*Introduction to CF4*”, Cosmic Frontier Workshop, SLAC, March 6 2013.
61. “*The LHC and New Physics Beyond the Standard Model*”, invited plenary talk at the SESAPS 2012 Meeting, Tallahassee, November 16 2012.
60. “*What we are missing and what we should do about it*”, invited plenary talk at the CMS SUSY workshop, DESY, Hamburg, Germany, June 4, 2012.
59. “*Theory: direct EWKino*”, invited plenary talk at the LHC Physics Workshop, Chicago, May 4, 2012.
58. “*Computer Tutorials*”, Sixth MC4BSM workshop, Cornell University, Ithaca NY, March 22, 2012.
57. “*Looking for SUSY under the LHC lamppost*”, invited plenary talk at the “Interpreting LHC Discoveries workshop”, GGI, Florence, Italy, November 10, 2011.

56. “*BSM Physics with 30 fb⁻¹*”, invited plenary talk, CMS Physics Week, Brussels, Belgium, September 14, 2011.
55. “*Beyond the Standard Model (theory)*”, invited plenary talk, Meeting of the Division of Particles and Fields of the American Physical Society, Brown University, Providence RI, August 9, 2011.
54. “*BSM Theory*”, invited plenary talk, Hadron Collider Physics Symposium, Toronto, Canada, August 26, 2010.
53. “*SUSY Mass Measurements at the LHC*”, invited plenary talk, SUSY 2010 conference, Bonn, Germany, August 24, 2010.
52. “*Self-introduction and Closing Remarks*”, invited talk, USCMS Meeting, Brown University, Providence RI, May 8, 2010.
51. “*Four Lepton Signatures: Theory Overview*”, invited talk at the 4-lepton Higgs workshop, Paris, France, July 3, 2009.
50. “*Welcome to MC4BSM*”, Fourth MC4BSM Workshop, UC Davis, CA, April 3, 2009.
49. “*Introduction to Mass and Spin Determinations*”, HEFTI Workshop, UC Davis, CA, April 2, 2009.
48. “*The Particle Physics Playbook*”, invited theory talk at CDF week, Fermilab, June 16, 2008.
47. “*New Physics Signatures and Precision Measurements at the LHC*”, “Anticipating Physics at the LHC” conference, Kavli Institute for Theoretical Physics, Santa Barbara, CA, June 5, 2008.
46. “*Minimal UED in CalcHEP/CompHEP*”, Second MC4BSM Workshop, Princeton University, Princeton, NJ, March 24, 2007.
45. “*Introduction and Welcome*”, Second MC4BSM Workshop, Princeton University, Princeton, NJ, March 23, 2007.
44. “*In Anticipation of the LHC*”, ‘Getting Ready for the LHC’ panel discussion, SUSY’06 conference, University of California, Irvine, CA, June 15, 2006.
43. “*Update on UF Theory Activities*”, Southeastern CMS Physics Workshop, University of Florida, Gainesville, May 31, 2006.
42. “*Summary of the Workshop Survey Results*”, MC4BSM Workshop, Fermilab, Batavia, IL, March 20, 2006.
41. “*Discovering and Testing Dark Matter in the Lab*”, Invited talk in the Dark Matter I session of the 2005 April APS Meeting, Tampa, April 16, 2005.
40. “*Universal Extra Dimensions*”, Invited talk in the Extra Dimensions session of the 2005 April APS Meeting, Tampa, April 16, 2005.
39. “*The Tevatron-LHC Physics Roadmap*”, TeV4LHC Workshop, Fermilab, Sept. 17, 2004.
38. “*Dark Matter Search from Space*”, COSPAR Scientific Assembly, Paris, July 20, 2004.
37. “*New Physics at LHC*”, CMS EMU Meeting, University of Florida, Gainesville FL, January 10, 2004.
36. “*SUSY Dark Matter?*”, Second International Conference on Particle and Fundamental Physics in Space (SpacePart ’03), Washington DC, December 10, 2003.

35. “*Measuring Sfermion Mixing Angles and CP Violating Phases at the LHC and NLC*”, Second Workshop on the Discovery Potential of an Asymmetric B Factory at 10^{36} Luminosity, SLAC, October 22, 2003.
34. “*Implementing Universal Extra Dimensions in COMPHEP*”, American Linear Collider Workshop, Cornell University, Ithaca, NY, July 13, 2003.
33. “*Bosonic Supersymmetry*”, SUSY’03: “Supersymmetry in the Desert” conference, University of Arizona, Tucson, AZ, June 9, 2003.
32. “*One Loop Corrections to Kaluza-Klein Masses*”, “LoopFest”, Brookhaven National Laboratory, Upton, NY, May 16, 2003.
31. “*Physics with Extra Dimensions*”, PHENO 2003 Symposium, University of Wisconsin, Madison, WI, May 7, 2003.
30. “*Particle Dark Matter Candidates from Physics beyond the Standard Model*”, APS Meeting, Philadelphia, April 6, 2003.
29. “*Focus Point Supersymmetry*”, SUGRA20 Conference, Northeastern University, Boston, March 18, 2003.
28. “*Bosonic Supersymmetry*”, Arlington Linear Collider Workshop, University of Texas at Arlington, January 10, 2003.
27. “*Supersymmetry*”, Theorists Rally for the Linear Collider, Arlington Linear Collider Workshop, University of Texas at Arlington, January 9, 2003.
26. “*SUSY and the Cosmic Connection*”, Arlington Linear Collider Workshop, University of Texas at Arlington, January 9, 2003.
25. “*Phenomenology of Bosonic Supersymmetry*”, SUSY’02 conference, DESY, Hamburg, June 17, 2002.
24. “*Extra Dimensions and Supersymmetry at the LHC*”, Meeting of the Japan ATLAS SUSY phenomenology group, Tokyo University, Tokyo, Japan, March 18, 2002.
23. “*The Rise and Fall of $g_\mu - 2$* ”, Aspen Winter Conference on Particle Physics, Aspen, CO, February 8, 2002.
22. “*Indirect SUSY Report*”, Summary of the activities of the “Indirect SUSY” Working Group, Snowmass 2001, July 18, 2001.
21. “*Fine Tuning and Theoretical Uncertainties*”, Argonne Theory Institute “From Supersymmetry To Extra Dimensions”, ANL, Argonne, IL, June 22, 2001.
20. “ *$g - 2$ of the Muon and Supersymmetry*”, “Searches Beyond the Standard Model” meeting, Cambridge, England, April 11, 2001.
19. “*The Anomalous Magnetic Moment of the Muon*”, “Higgs & Supersymmetry” conference, Orsay, France, March 19-22, 2001.
18. “Focal Point Theories”, CLIC Physics Study Group, CERN, October 5-6, 2000.
17. “*Funny Higgs Boson Decays and Run II*”, Aspen Center for Physics Workshop “New Physics at the TeV Scale and Beyond”, Aspen, September 5, 2000.
16. “*Unorthodox Searches for the Higgs Boson*”, presented at the 2000 DPF Meeting of The American Physical Society, The Ohio State University, Columbus, OH, August 9-12, 2000.

15. “*Unorthodox Higgs Signals in Run II*”, New Perspectives conf., Fermilab, June 28, 2000.
14. “*Alternative Higgs Boson Searches at the Tevatron*”, Theoretical Institute on SUSY and Higgs 2000, Argonne National Laboratory, Argonne, IL, May 11, 2000.
13. “*Phenomenology of Focus Point Supersymmetry*”, Pheno-2000 Symposium: Phenomenology for the Nu century, University of Wisconsin, Madison, WI, April 17-19, 2000.
12. “*SUSY Discovery Opportunities at the LHC and the NLC*”, Berkeley-2000: a workshop on the physics and detectors of future e^+e^- colliders, Lawrence Berkeley National Laboratory, Berkeley, CA, March 29-31, 2000.
11. “*What’s New with New Dimensions*”, International Conference on Orbis Scientiae, “Quantum Gravity, Generalized Theory of Gravitation and Superstring Theory-Based Unification”, Fort Lauderdale, FL, December 16-19, 1999.
10. “*Naturalness re-examined: implications for supersymmetry searches*”, PASCOS’99, Lake Tahoe, CA, December 10-16, 1999.
9. “*New Signals for Large Extra Dimensions at the Tevatron*”, SUSY’99 conference, Fermilab, June 14-19, 1999.
8. “*SUSY Reach of the Tevatron in Channels with Leptons and Tau Jets*”, Pheno’99 Symposium: Phenomenology for the Third Millenium, Madison, WI, April 12-14, 1999.
7. “*SUSY Signatures with Tau Jets at the Tevatron*”, “Higgs and Supersymmetry: Search and Discovery” conference, Gainesville, FL, March 8-11, 1999.
6. “*SUSY Tau Signals at Run II*”, Summary Meeting of the SUSY/Higgs Run II Workshop, Fermilab, November 19-21, 1998.
5. “*First Results with SHW for SUSY*”, SUGRA Working Group meeting, Run II Workshop, Fermilab, September 3, 1998.
4. “*Supersymmetry Reach of the Upgraded Tevatron*”, SUSY’98 conference, Oxford, England, July 12-17, 1998.
3. “*Light Stop Searches in Run II*”, SUGRA working group session, First General Meeting of the SUSY/Higgs Run II Workshop, Fermilab, May 13-16, 1998.
2. “*MSUGRA and Beyond: Comparison with GMSB and Non-minimal SUGRA*”, D0 New Phenomena Workshop, Davis, CA, March 26-29, 1998.
1. “*Aspects of SUSY $SO(10)$ Unification*”, Pheno-CTEQ Symposium, Madison, WI, March 23-26, 1998.

Colloquia, Seminars and Talks

67. “*Update from the Gators*”, presentation at the Ariel Machine Learning Working Group meeting, February 1, 2024.
66. “*Machine-Learning Symmetries in Physics from First Principles*”, physics colloquium, Physics Department, University of Texas, Austin, TX, October 17, 2023.
65. “*Exploring Dark Matter Shadows with AI*”, astrophysics seminar, Physics Department,

Rice University, Houston, TX, October 16, 2023.

64. “*Machine Learning Symmetries in Physics from First Principles*”, high-energy seminar, Physics Department, Rice University, Houston, TX, October 16, 2023.
63. “*Is the Machine Smarter than the Theorist? A Phenomenologist’s Perspective*”, high-energy seminar, Physics Department, Oklahoma State University, Stillwater, OK, October 13, 2023.
62. “*Machine-Learning Symmetries in Physics from First Principles*”, physics colloquium, Physics Department, Oklahoma State University, Stillwater, OK, October 12, 2023.
61. “*Tricks and treats in missing energy event kinematics*”, physics seminar, University of Texas, Austin, October 24, 2017.
60. “*New Tools for New Physics Discoveries*”, physics seminar, Zhejiang University, China, July 18, 2016.
59. “*Open Questions in Higgs Physics*”, physics colloquium, University of Florida, October 24, 2013.
58. “*Thoughts on staus*”, invited talk at the CMS SUSY 3rd generation working group meeting, May 11, 2012.
57. “*A Storm in a ’T’ Cup (pedagogical introduction to invariant mass variables from Floxbridge and elsewhere)*”, INFN Seminar, Frascati, Italy, July 8, 2011.
56. “*A Storm in a ’T’ Cup (pedagogical introduction to invariant mass variables from Floxbridge and elsewhere)*”, Greater Chicagoland Seminar, Northwestern University, Evanston IL, May 20, 2011.
55. “*Mass Measurements in Missing Energy Event Topologies*”, University of Zurich, Zurich, Switzerland, July 15, 2010.
54. “*The LHC is on. Now what?*”, invited colloquium, Physics Department, Florida State University, Tallahassee, FL, December 3, 2009.
53. “*The Latest and the Greatest Tricks for Studying Missing Energy Events at Hadron Colliders: part III*”, “CMS Theorist of the Week” lecture, Fermilab, Batavia, IL, August 14, 2009.
52. “*The Latest and the Greatest Tricks for Studying Missing Energy Events at Hadron Colliders: part II*”, “CMS Theorist of the Week” lecture, Fermilab, Batavia, IL, August 13, 2009.
51. “*MET and MET Searches at CMS*”, “CMS Theorist of the Week” lecture, Fermilab, Batavia, IL, August 12, 2009.
50. “*The Latest and the Greatest Tricks for Studying Missing Energy Events at Hadron Colliders: part I*”, “CMS Theorist of the Week” lecture, Fermilab, Batavia, IL, August 11, 2009.
49. “*Model-Independent Mass and Spin Measurements in Missing Energy Events*”, joint particle theory-experiment seminar, University of Maryland, College Park, MD, March 31, 2009.
48. “ *S_{min} : a Global Inclusive Variable for Measuring the Mass Scale of New New Physics in*

Missing Energy Events”, CMS SUSY mini-team meeting, University of Florida, Gainesville FL, December 16, 2008.

47. “*A General Method for Spin Measurements in Events with Missing Energy*”, CMS SUSY mini-team meeting, University of Florida, Gainesville FL, October 14, 2008.

46. “*Discovering the Quantum Universe*”, Physics Department Colloquium, University of Florida, Gainesville, FL, September 7, 2006.

45. “*Precision SUSY Measurements at the LHC: an Introduction*”, University of Florida, Gainesville, FL, December 13, 2005.

44. “*Precision Physics at the Highest Energies*”, Physics colloquium, University of California, Irvine, CA, March 3, 2005.

43. “*Cosmoparticle Connections*”, Lawrence Berkeley National Laboratory, Berkeley, CA, February 17, 2005.

42. “*CSI: Geneva 2007*”, Lawrence Berkeley National Laboratory, Berkeley, CA, February 16, 2005.

41. “*Discovery and Identification of New Physics in Particle and Astroparticle Physics Experiments*”, Cornell University, Ithaca, NY, January 28, 2005.

40. “*Dark Matter and Physics beyond the Standard Model at Colliders*”, LEPP Journal Club, Cornell University, Ithaca, NY, May 14, 2004.

39. “*Dark Matter and Physics beyond the Standard Model at Colliders*”, The Ohio State University, Columbus, OH, May 12, 2004.

38. “*The LHC-LC complementarity and other lessons from the Arlington Linear Collider Workshop*”, University of Florida, Gainesville, FL, February 24, 2003.

37. “*Bosonic Supersymmetry and Kaluza-Klein Dark Matter*”, University of Florida, Gainesville, FL, November 12, 2002.

36. “*Bosonic Supersymmetry and Kaluza-Klein Dark Matter*”, Florida State University, Tallahassee, FL, November 5, 2002.

35. “*Bosonic Supersymmetry and Kaluza-Klein Dark Matter*”, CERN, Geneva, Switzerland, August 16, 2002.

34. “*Bosonic Supersymmetry*”, Institut de Physique Théorique, Université de Lausanne, Lausanne, Switzerland, July 15, 2002.

33. “*Bosonic Supersymmetry? Getting Fooled at the LHC*”, CMS Physics Meeting, CERN, July 8, 2002.

32. “*The Quest for the Next Energy Frontier*”, Yukawa Institute for Theoretical Physics, Kyoto, Japan, March 6, 2002.

31. “*The Quest for the Next Energy Frontier*”, Tohoku University, Sendai, Japan, March 1, 2002.

30. “*A summary of my grant proposal*”, HEP seminar, Department of Physics, University of Florida, Gainesville, FL, January 22, 2002.

29. “*The Muon Magnetic Dipole Moment and Electric Dipole Moment*”, Aspen Center for Physics Workshop “Electroweak Symmetry Breaking and TeV Scale Physics after LEP”,

Aspen, July 25, 2001.

28. “*Dark Matter Uncertainties vis-a-vis Benchmarks*”, SUSY Benchmark Discussion of the “Higgs + SUSY” Working Group, Snowmass 2001, July 9, 2001.
27. “*Dark Matter: What Can We Learn?*”, Dark Matter Jamboree of the “Indirect SUSY” Working Group, Snowmass 2001, July 7, 2001.
26. “*g – 2 and SUSY*”, *g – 2* Fest of the “Indirect SUSY” Working Group, Snowmass 2001, July 6, 2001.
25. “*The Quest for the Next High Energy Frontier*”, Department of Physics, University of Florida, Gainesville, FL, February 23, 2001.
24. “*The Quest for the Next High Energy Frontier*”, Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD, February 20, 2001.
23. “*The Quest for the Next High Energy Frontier*”, TH Division, CERN, Feb. 16, 2001.
22. “*Polarization at CLIC: Theories with Extra Dimensions*”, biweekly meeting of the CLIC Physics Study Group, CERN, February 14, 2001.
21. “*The Quest for the Next High Energy Frontier*”, Institute of Theoretical Physics, University of Lausanne, Lausanne, Switzerland, February 12, 2001.
20. “*Prospects for Indirect Detection of Neutralino Dark Matter*”, Theoretical Astrophysics Seminar, Fermilab, September 18, 2000.
19. “*Unorthodox Higgs Signals at the Tevatron and Beyond*”, Department of Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, January 28, 2000.
18. “*Unorthodox Higgs Signals at the Tevatron and Beyond*”, Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD, January 26, 2000.
17. “*Unorthodox Higgs Signals at the Tevatron and Beyond*”, Physics Department, New York University, New York, NY, January 24, 2000.
16. “*Non-Standard Higgs Boson Searches at the Tevatron and Beyond*”, Theoretical Physics Group, Lawrence Berkeley Lab, Berkeley, CA, November 24, 1999.
15. “*Non-Standard Higgs Boson Searches at the Tevatron and Beyond*”, University of California, Davis, CA, November 23, 1999.
14. “*Non-Standard Higgs Boson Searches at the Tevatron and Beyond*”, Theoretical Physics Group, SLAC, November 22, 1999.
13. “*Naturalness Re-examined: Implications for Supersymmetry Searches*”, Ohio State University, Columbus, OH, November 10, 1999.
12. “*Focus Points and Naturalness in Supersymmetry*”, Theory Group, Argonne National Laboratory, September 27, 1999.
11. “*SUSY Reach of the Tevatron in Channels with Leptons and Tau Jets*”, Theory seminar, Fermilab, April 22, 1999.
10. “*Some New Supersymmetric Signatures at the Tevatron*”, University of Illinois, Urbana-Champaign, IL, October 12, 1998.
9. “*Supersymmetry Reach of an Upgraded Tevatron*”, Stanford University, Stanford, CA, April 2, 1998.

8. *"Supersymmetry at the Upgraded Tevatron"*, University of Wisconsin, Madison, WI, March 13, 1998.
7. *"Supersymmetry Reach of the Upgraded Tevatron"*, Purdue University, West Lafayette, IN, March 3, 1998.
6. *"Supersymmetry Reach of the Upgraded Tevatron"*, Northwestern University, Evanston, IL, February 9, 1998.
5. *"GMSB: II. Phenomenology"*, D0 New Phenomena Group, Fermilab, January 29, 1998.
4. *"GMSB: I. Models"*, D0 New Phenomena Group, Fermilab, January 15, 1998.
3. *"Precision Corrections to Mass Sum Rules in the MSSM"*, University of Michigan, Ann Arbor, MI, November 21, 1997.
2. *"Precision Corrections to Mass Sum Rules in the MSSM"*, Theory Group, Argonne National Laboratory, November 3, 1997.
1. *"Old and New Approaches to SUSY Unification"*, Theory Group, Brookhaven National Laboratory, June 29, 1995.