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Curriculum Vitae

Education

- Ph.D. Physics. University of California, Davis. 2002.
(Particle physics. Advisor: James Wells.)
(Intercampus exchange to UC Berkeley, 1998-2002.)
- M.S. Electrical Eng. University of Arkansas, Fayetteville. 1996.
(Neural Networks, Image/Digital Signal Processing)
- B.E. Electronics & Communication. Bangalore University. 1992.

Fellowships

- Student Employee Graduate Research Fellowship from the Lawrence Livermore National Laboratory, 1997 – 2002.

Research Positions

- Research Associate, Theoretical High Energy Physics, Brookhaven National Laboratory, Oct 2006 – Present.
- Post-doctoral Associate, Theoretical High Energy Physics, Northwestern University, Sept 2004 – Sept 2006.
- Research Associate, Theoretical High Energy Physics, Michigan State University, Sept 2002 – Aug 2004.
- Participating Guest, Theoretical Physics Group, Lawrence Berkeley Laboratory, July 1999 – 2002.
- Student Employee, Lawrence Livermore National Laboratory, July 1997 – Sept 2002.

- Postgraduate Researcher, Lawrence Livermore National Laboratory, May 1996 – July 1997.
- Graduate Research Assistant, University of Arkansas, Jan 1994 – Apr 1996

Publications

In preparation:

- With S. Lee and J. Wells, “Abelian hidden sector dark matter and LHC signatures.”
- With T. Han, I. Lewis, Z. Si, Y. Zhou, “Angular correlations due to heavy gauge bosons at the LHC.”
- With H. Davoudiasl, C. Jackson and A. Soni, “Warped-space contributions to precision electroweak observables.”

Refereed Publications:

- With K. Agashe, T. Han, G. Huang and A. Soni, “LHC Signals for Warped Electroweak Charged Gauge Bosons.” [arXiv:0810.1497 [hep-ph]]. (To be submitted.)
- With S. Jung and J. Wells, “Higgs boson decays to four fermions through an abelian hidden sector.” *Phys.Rev.D*78:055002 (2008) [arXiv:0801.3456 [hep-ph]].
- With K. Agashe, H. Davoudiasl, T. Han, G. Huang, G. Perez, Z. Si, A. Soni, “LHC Signals for Warped Electroweak Neutral Gauge Bosons.” *Phys. Rev. D* 76:115015 (2007) [arXiv:0709.0007 [hep-ph]].
- With Andre de Gouvea and Werner Porod, “Stop Decay into Right-handed Sneutrino LSP at Hadron Colliders.” *JHEP* 0611:050,2006 [hep-ph/0606296].
- With Andre de Gouvea and Werner Porod, “Right-handed Sneutrinos as Nonthermal Dark Matter.” *JCAP* 05(2006)005. [hep-ph/0602027].
- With Andre de Gouvea, “Low-Energy Neutrino Majorana Phases and Charged-Lepton Electric Dipole Moments.” *Phys. Rev. D*72:093008 (2005) [hep-ph/0508148].
- With C.-P. Yuan, “B-Meson Signature of a Supersymmetric U(2) flavor model.” *Phys. Rev. D*71:035012 (2005) [hep-ph/0410181].
- With Roshan Foadi and Carl Schmidt, “Effects of fermion localization in Higgsless theories and electroweak constraints.” *Phys. Lett. B*606:157-163 (2005) [hep-ph/0409266].
- With Qing-hong Cao and C.-P. Yuan, “Collider Signature of Bulk Neutrinos in Large Extra Dimensions.” *Phys. Rev. D*70:075020 (2004) [hep-ph/0405220].
- With Qinghong Cao and C.-P. Yuan, “Constraints on Large Extra Dimensions with Bulk Neutrinos.” *Phys. Rev. D*69:115003 (2004) [hep-ph/0312339].

- With Roshan Foadi and Carl Schmidt, “Higgsless Electroweak Symmetry breaking from Theory Space.” JHEP 0403:042 (2004) [hep-ph/0312324].
- Shrihari Gopalakrishna, “Proton Decay due to bulk SU(5) Gauge Bosons in the Randall-Sundrum scenario.” Phys. Rev. D66:024011 (2002) [hep-ph/0202075].
- With James Wells, “Superlight gravitinos in electron photon collisions.” Phys. Lett. B518 (2001) 123 [hep-ph/0108006].

Conference Proceedings:

- With T. Lari et al., “Collider aspects of flavour physics at high Q.” CERN Workshop “Flavour in the era of the LHC”, Nov 2005 – Mar 2007 arXiv:0801.1800 [hep-ph].
- With A. de Gouvea and W. Porod, “Right-handed sneutrino cosmology and hadron collider signatures”, Proceedings of SUSY 2006, Irvine, California.
- With C.-P. Yuan, “New Physics in the Flavor Sector.”, Proceedings of Deep Inelastic Scattering 2005, Madison, Wisconsin.
- J. Hewett, (ed.) et al., “The Discovery Potential of a Super B Factory.” Proceedings of SLAC Workshop, (2003) [hep-ph/0503261].
- With C.-P. Yuan, “B Physics Signature of a Supersymmetric U(2) flavor model.” Proceedings of Supersymmetry 2003, Tucson, Arizona [hep-ph/0402096].
- With Maxim Perelstein, James Wells, “Extra Dimensional vs. Supersymmetric Interpretation of Missing Energy Events at the NLC.” Proceedings of Snowmass 2001 [hep-ph/0110339].
- T. Abe, *et al.* (American Linear Collider Working Group), “Linear Collider Physics Resource Book for Snowmass 2001.” [hep-ex/0106055-58].
- With Youngbae Kim, A.E. Koniges, “Remote Visualization over Standard Network Connections.” Proceedings of the Fourth Europ. SGI/Cray MPP Workshop, Garching, Germany, (1998) 252-256.

Talks Presented

- “Heavy electroweak resonances at the LHC.” LHC08 workshop, KITP, Santa Barbara (Apr 2008); Pheno 2008, University of Wisconsin, Madison (April 2008); Santa Fe 2008 Summer Workshop (Jul 2008); Fermilab HEP Seminar (Aug 2008).
- “Warped-space Electroweak Neutral Gauge Bosons at the LHC.” High Energy Physics seminars presented at: SUNY Buffalo; Cornell University; University of Maryland, College Park; Johns Hopkins University; (Oct 2007); University of Massachusetts, Amherst (Dec 2007).

- “LHC Signatures of Warped Space Models.” New Horizons at Colliders, Brookhaven Forum 2007, May 2007.
- “Warped space gauge bosons at the LHC.” Pheno 2007, University of Wisconsin, Madison, May 2007.
- “Right-handed Sneutrino Cosmology and Collider Signatures.” High Energy Theory/Cosmology seminar, Syracuse University, April 2007.
- Brookhaven High Energy Theory Lunch Seminars: “LHC Signatures of Warped Electroweak Gauge Bosons,” Sept. 2007. “Warped Space Electroweak Gauge Bosons,” March 2007.
- “Stop versus Top at the Tevatron and the LHC.” Enrico Fermi Institute, University of Chicago (July 2006).
- “Right-handed Sneutrino Cosmology and Collider Signatures.” LHC Inverse Workshop, Univ. of Michigan Ann Arbor (April 2006); HEP Group CEA, Saclay, France (April 2006); HEP Group, IPPP, Durham, U.K., April (2006); Pheno 2006 Symposium, Univ. of Wisconsin, Madison (May 2006); Supersymmetry 2006, Univ. of California, Irvine (June 2006).
- “Right-handed Sneutrino Dark Matter.” High Energy Physics seminar, Los Alamos National Laboratory (Jan 2006).
- “Effective Supersymmetry and B Decays.” International Linear Collider workshop, Snowmass, Colorado (Aug 2005).
- “Phenomenology of a Triplet Higgs Boson and Lepton Number Violation.” ANL Theory Institute, Argonne National Laboratory (May 2005).
- “Triplet Higgs boson and Majorana neutrinos.” Pheno 2005 Symposium, Univ. of Wisconsin, Madison (May 2005).
- “New Physics in the Flavor Sector.” Deep Inelastic Scattering - 2005, Madison (April 2005).
- “Explaining B-meson data with a supersymmetric U(2) flavor model.” HEP Theory Seminar, Purdue Univ. (Feb 2005); Univ. of Wisconsin, Madison (Feb 2005); Argonne National Laboratory (Jan 2005); Northwestern Univ. (Sept 2004).
- “Constraints and Collider Signatures of Bulk Right-handed Neutrinos.” Meeting of the APS Division of Particles and Fields, Univ. of California, Riverside (Aug 2004); ANL Theory Institute, Argonne National Laboratory (May 2004).
- “Higgsless Electroweak Symmetry Breaking.” Pheno 2004 Symposium, Univ. of Wisconsin, Madison (April 2004).
- “Bulk Neutrinos in Large Extra Dimensions.” HEP/Nuclear Seminar, Wayne State Univ., Detroit (Oct 2003).

- “B-physics Signature of a Supersymmetric U(2) Flavor Model.” SUSY 2003, Univ. of Arizona, Tucson (June 2003); Pheno 2003 Symposium, Univ. of Wisconsin, Madison (May 2003).
- “Proton Decay in a Warped Extra Dimension.” HEP Theory Seminar, Fermilab (May 2003).
- “Supersymmetric contributions in b to s gamma.” HEP Theory Seminar, Argonne National Laboratory (Feb 2003).
- “Proton Decay in Extra dimensions.” High Energy Physics Seminar, Michigan State Univ. (Oct 2002).
- “Collider Signatures of a Superlight Gravitino.” Physics Department Colloquium, Univ. of California Davis (June 2002).
- “Proton Decay due to bulk SU(5) gauge bosons in the Randall Sundrum Scenario.” APS California Section Spring Meeting, Univ. of California Davis, March 2002 (Conference); Indian Institute of Science, Bangalore (Dec 2001).
- “Supersymmetric Orbifold GUTs.” Univ. of California Davis (Aug 2001).
- “Superlight gravitino at e-gamma colliders.” 2nd International Workshop on High Energy Photon Colliders. Fermilab (March 2001).
- “Phenomenology of the Superlight Gravitino.” Univ. of California Davis (Nov 2000).

Other Talks:

- “Dark Matter in Particle Physics.” Introductory talk for summer students, Dearborn Observatory, Northwestern Univ. (July 2006).
- “Neutrino Majorana phases and charged-lepton electric dipole moments.” New Phenomena group discussion, Journal club at the Fermilab Theory group (Sept 2005).
- “Tiny neutrino masses - a theoretical perspective.” New Perspectives 2005, Fermilab (June 2005).
- “Introduction to the Physics of Extra dimensions.” Three-lecture series presented to the HEP group, Michigan State Univ. (Oct 2002).
- “Superlight gravitinos in electron photon collisions.” Theoretical Advanced Study Institute, TASI-2001 Student Seminar, Univ. of Colorado, Boulder (June 2001).

Other Conferences/Workshops Attended

- Chicago-Argonne Workshop on Collider Physics, Argonne National Laboratory (May 2006).

- Conferences/Workshops attended at Fermilab: TeV4LHC (Sept 2004, Oct 2005); Users Meeting (June 2005); TeV Particle Astrophysics Conference (July 2005); Bardeen Symposium (Sept 2005); Monte Carlo tools for Beyond the Standard Model Physics (March 2006); Weekly HEP Theory Seminars;
- Kaon 2005, Northwestern Univ., Evanston (June 2005).
- Top Quark Symposium, Univ. of Michigan, Ann Arbor (April 2005).
- Sugra 20, Northeastern Univ., Boston (March 2003).
- APS April Meeting, Philadelphia (April 2003).
- Theory Institute 2002, Argonne National Laboratory (Sept 2002).
- Snowmass 2001, “The future of Particle Physics.”, Snowmass, Colorado (June 2001).
- Berkeley 2000 Linear Collider Workshop, Lawrence Berkeley Lab (March 2000).

Other Educational Activities

- Cosmology reading with Andre de Gouvea and James Jenkins. Weekly pedagogical discussion on current ideas in cosmology, Northwestern Univ. (May-Dec 2005).
- Participant, Theoretical Advanced Study Institute (TASI-2001), “Strings, Branes and Extra dimensions.”, Univ. of Colorado, Boulder (June 2001).
- Participant, Summer School in “CP violation in and beyond the standard model.” Stanford Linear Accelerator Center (July 1999).

Research and Development Work

- Familiarity with the resistive plate chamber reconstruction software, and, Monte-Carlo simulation for BaBar, under the guidance of Dr. Doug Wright, Lawrence Livermore Lab (1997-98).
- Developed a real-time visualization software using the CUMULVS package based on the PVM protocol, useful in high performance computing, under the guidance of Dr. Alice Koniges, Lawrence Livermore Lab (1996-97).
- Conceived, designed and built a continually online trained artificial neural network for real-time control using a digital signal processor (TMS320C30), under the guidance of Prof. Juan Balda, M.S. project work, Department of Electrical Engineering, Univ. of Arkansas, Fayetteville (1994-1996).
- Part of a team that designed and built an image processing sub-system using a digital signal processor (ADSP 2100) as part of a real-time feedback control system, Systems Engineer, Microcon Instruments and Systems, Bangalore, India (1993).

- Designed and built an Intel-8085 based data acquisition system and joystick controller, B.E. project work under the guidance of Dr. Seshadri, Aeronautical Development Establishment, Bangalore, India (1991-1992).

Computing Skills

- Proficient in C, C++, Fortran; Familiar with programming in a distributed/parallel computing environment.
- Expertise in Monte-Carlo simulation of new physics processes in Pythia, MadGraph, CalcHEP and CompHEP. Familiarity with Pandora.
- Proficient in: Algebraic manipulation programs Form and FeynCalc; Loop integral evaluation using LoopTools (in Mathematica); Familiar with analysis package ROOT.
- Implemented numerous graphics (ray tracing) and image processing algorithms.

Other Professional Activities

- Co-organizer of High Energy Physics Seminar Series at: Michigan State Univ., Fall 2003 and Spring 2004. Brookhaven HET/RIKEN seminar series Oct 2007 - Sep 2008.
- Referee for the journals: Physical Review D, International Journal of Theoretical Physics, International Journal of Modern Physics A.
- Member of American Physical Society.
- World Year of Physics outreach event to area high school students, co-organized modern physics demonstrations, Northwestern Univ., May 2005.

Hobbies

- Backpacking, Hiking, Camping, Tennis, Skiing, Music (blues, Indian classical).