Hai-Jun Yang - Curriculum Vitae

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Education:

1995.9-2000.7	Ph.D in Physics, 2000, Joint education of Institute of High Energy Physics (IHEP, Beijing) & Swiss Federal Institute of Technology (ETH, Zurich) Advisors: Prof. Xiaowei Tang, Martin Pohl, Guoming Chen
1991.9-1995.7	B.Sc., Hangzhou University (renamed as Zhejiang University)

Employment:

2005.8 - present	Assistant Research Scientist, University of Michigan
2001.11 - 2005.7	Research Fellow, University of Michigan
2000.8 - 2001.10	Research Fellow, University of Michigan (located at CERN)

Research Experience:

2005 - present: Principal Investigator (PI) of DOE/LANL subcontract grant for MiniBooNE at the University of Michigan
2005 - present: ATLAS at CERN (with Prof. B. Zhou etc.)
2003 - present: MiniBooNE at Fermilab (with Prof. B.P. Roe etc.)
2000 - present: International Linear Collider (with Prof. K. Riles etc.)
1997 - 2003 : L3 at CERN (with Prof. K. Riles, M. Pohl, X.W. Tang etc.)

Selected Publications

- MiniBooNE Collab., A.A. Aguilar-Arevalo et.al., *A Search for Electron Neutrino Appearance at the* $\Delta m^2 \sim 1\ eV^2$ *Scale*, Phys. Rev. Lett. 98, 231801, 2007. [hep-ex/0704.1500]
- MiniBooNE Collab. A.A. Aguilar-Arevalo et.al., *Measurement of Muon Neutrino Quasi-Elastic Scattering on Carbon*, Phys. Rev. Lett. 100, 032301, 2008. [arXiv:0706.0926]
- ATLAS Collab. *The ATLAS Experiment at the CERN Large Hadron Collider*, to appear in Journal of Instrumentation (JINST), 2008.
- **Hai-Jun Yang**, Tiesheng Dai, Alan Wilson, Zhengguo Zhao, Bing Zhou, *A Multivariate Training Technique with Event Reweighting*, to appear in Journal of Instrumentation (JINST), 2008. [arXiv:0708.3635]
- **Hai-Jun Yang**, Sven Nyberg, Keith Riles, *High-precision Absolute Distance Measurement using Dual-Laser Frequency Scanned Interferometry Under Realistic Conditions*, Nucl. Instrum. & Meth. A 575:395-401,2007. [physics/0609187]

- **Hai-Jun Yang**, Byron P. Roe, Ji Zhu, *Studies of Stability and Robustness for Artificial Neural Networks and Boosted Decision Trees*, Nucl. Instrum. & Meth. A 574:342-349,2007. [physics/0610276]

- Byron P. Roe, **Hai-Jun Yang**, Ji Zhu, "Boosted decision trees, a powerful event classifier", Proceedings of PHYSTAT05 (Statistical Problems in Particle Physics, Astrophysics and Cosmology), Oxford, UK, September 12-15, 2005.

- **Hai-Jun Yang**, Byron P. Roe, Ji Zhu, *Studies of boosted decision trees for MiniBooNE particle identification*, Nucl. Instrum. & Meth. A555:370-85,2005. [physics/0508045]

- Byron P. Roe, **Hai-Jun Yang**, Ji Zhu, Yong Liu, Ion Stancu, Gordon McGregor, *Boosted decision trees as an alternative to artificial neural networks for particle identification*, Nucl. Instrum. & Meth. A543:577-584,2005. [physics/0408124]

- **Hai-Jun Yang**, Jason Deibel, Sven Nyberg, Keith Riles, *High-precision absolute distance and vibration measurement by using frequency scanned interferometry*, Applied Optics, Vol.44:3937,2005. [physics/0409110]

- **Hai-Jun Yang**, Sven Nyberg, Keith Riles, *Frequency Scanned Interferometry for the ILC Tracker Alignment*, Proceeding paper for 2005 International Linear Collider Workshop (LCWS05), 06/27/2005. (Physics/0506197)

- **Hai-Jun Yang** and Keith Riles, *Impact of Tracker Design on Higgs and Slepton Measurements*, Proceeding paper for 2005 International Linear Collider Workshop (LCWS05), 06/27/2005. (Physics/0506198)

- LEP Higgs Working Group, R. Barate et al., *Search for the standard model Higgs boson at LEP*, Phys. Lett. B565:61-75,2003.

- L3 Collab., *Search for neutral Higgs bosons of the minimal supersymmetric standard model in e^+e^- interactions at $\sqrt{S}$ up to 209 GeV*, Phys. Lett. B545:30-42,2002.

- L3 Collab., *Standard model Higgs boson with the L3 experiment at LEP*, Phys. Lett. B517:319-331,2001.

- L3 Collaboration, *Measurement of the topological branching fractions of the τ lepton at LEP*, Phys. Lett. B519:189-198,2001.

- L3 Collaboration, *Production of single W bosons at $\sqrt{S}$ =189 GeV and measurement of $WW\gamma$ gauge couplings*, Phys. Lett. B487:229-240,2000.

- American Linear Collider Working Group, T. Abe et al., LINEAR COLLIDER PHYSICS RESOURCE BOOK FOR SNOWMASS 2001. SLAC-R-570 (May 2001) 436p. Available as hep-ex/0106055 (part 1), hep-ex/0106056 (part 2), hep-ex/0106057 (part3), and hep-ex/0106058 (part 4).

Recent Presentations

- *Search for New Physics at Present and Near Future*, Seminar at Physics Department of Boston University on Feb. 4, 2008.
- *Search for $H \to WW^{(*)}$ with ATLAS Detector Based on Boosted Decision Trees* at LHC New Physics Signature Workshop at U. of Michigan on Jan. 5-11, 2008.
- *Search for Neutrino Oscillation with MiniBooNE Detector*, Colloquium at University of Nebraska, Lincoln on Nov. 29, 2007.
- *Impact of ILC Tracker Design on $e^+e^- \to HZ \to \mu^+\mu^- X$ Analysis* at ALCPG07 Workshop at Fermilab on Oct. 22-26, 2007.
- *ILC Tracker Alignment Based on Frequency Scanned Interferometry* at ALCPG07 Workshop at Fermilab on Oct. 22-26, 2007
- *MiniBooNE First Results (1998-2007)* at Institute of High Energy Physics in Beijing on July 20, 2007.
- *WW and ZW Analysis Based on Boosted Decision Trees* at ATLAS Trigger and Physics Week at CERN on June 4-8, 2007.
- *Status of ILC Tracker Alignment Based on Frequency Scanned Interferometer* at SiD workshop at Fermilab on April 9-11, 2007.
- *MiniBooNE Event Reconstruction and Particle Identification* at APS April Meeting in Jacksonville, Florida on April 14-17, 2007.
- *Measurement of Out of Tank(Dirt) Events with MiniBooNE* at APS April Meeting in Jacksonville, Florida on April 14-17, 2007.
- *Search for $\nu_\mu \to \nu_e$ Oscillation with MiniBooNE* at The 6th KEK Topical Conference: Frontier in Particle Physics and Cosmology in Japan on Feb. 6-8, 2007.
- *Physics Analysis with Advanced Data Mining Techniques* at CCAST Workshop on TeV Physics and the LHC in Beijing on Nov. 6-10, 2006.
- *MiniBooNE Event Reconstruction and Particle Identification* at The Annual Meeting of APS/DNP in Nashville, Tennessee on Oct. 25-28, 2006.

Technical Notes (3) for ATLAS Experiment at CERN

- ATLAS-COM-PHYS-2008-023, "ATLAS H-¿WW Detection Sensitivity with Boosted Decision Trees", **Hai-Jun Yang et.al.,**, 03/05/08 (140 pages)
- ATLAS CSC Note for Diboson physics, "Diboson Physics Studies with the ATLAS Detector", **Hai-Jun Yang et.al.,**, 01/14/08 (32 pages)
- "A Multivariate Training Technique with Event Reweighting", **Hai-Jun Yang**, Tiesheng Dai, Alan Wilson, Zhengguo Zhao, Bing Zhou, arXiv.0708.3635, 2007

Proceeding and Technical Notes (7) for L3 Experiment at CERN

- "Searches for Gauge-Mediated SUSY Breaking Topologies with the L3 Detector at LEP", by M. Gataullin, S. Rosier, L. Xia, **Hai-Jun Yang**, to appear in Proceeding of SUSY06, the 14th International Conference on Supersymmetry and the Unification of Fundamental Interactions, UC Irvine, California, 12-17, June 2006. hep-ex/0611010.
- CERN-EP/2003-019, "Measurement of Branching Fractions of τ Hadronic Decays", by the L3 Collaboration.
- L3 note 2777, "Interpretation of Neutralino and Scalar Lepton Searches in minimal GMSB Model", by Marat Gataoulline, Sylvie Rosier-Lees, Lei Xia, **Hai-Jun Yang**, 9/23/2002.
- L3 note 2735. "Search for Neutral Higgs Bosons of the Minimal Supersymmetric Standard Model in e^+e^- Interactions at $\sqrt{s}$ = up to 209 GeV", by R. Berbeco, S. Cucciarelli, A. Holzner, W. Lohmann, B. Musicar, A. Raspereza, J. Yamamoto, **Hai-Jun Yang**. 3/8/2002.
- L3 note 2700, "Searches for the neutral Higgs bosons of the MSSM: preliminary combined results using LEP data collected at energies up to 209 GeV", by the LEP Higgs Working Group, the Aleph, Delphi, L3 and Opal Collaborations, 7/4/2001
- L3 note 2692, "Search for Neutral Higgs Bosons of the Minimal Supersymmetric Standard Model in e^+e^- Interactions at $\sqrt{s}$ up to 209 GeV", by S. Cucciarelli, A. Raspereza, **Hai-Jun Yang**, 7/2/2001.
- L3 note 2656, "Searches for the Neutral Higgs Bosons of the MSSM: Preliminary Combined Results Using LEP Data collected at Energies up to 209 GeV", by the LEP Higgs Working Group, the Aleph, Delphi, L3 and Opal Collaborations, 3/20/2001.

Technical Notes (16) for MiniBooNE Experiment at Fermilab

- BooNE-TN214,"Estimation of Radiative Gamma Events Using CCBox and May06 DirtMC Samples", **Hai-Jun Yang**, 11/01/06.
- BooNE-TN213,"Proposal to Combine Boost and YBoost to Build the Final PID Varialbes", **Hai-Jun Yang**, G. Mills, 10/10/06.
- BooNE-TN211,"Studies of Stability and Robustness for Artificial Neural Networks and Boosted Decision Trees" , **Hai-Jun Yang**, B. Roe, J. Zhu, 10/4/06.
- BooNE-TN203,"Measurement of Dirt Events" , **Hai-Jun Yang**, 9/15/06.
- BooNE-TN197,"Proposal to Open DirtBox for Direct Measurement of Dirt Events" , **Hai-Jun Yang**, T. Katori, 8/17/06.
- BooNE-TN189,"Boosting ParticleID for May06 Baseline" , **Hai-Jun Yang**, 7/10/06.
- BooNE-TN180,"Effect of Dirt Events on nue Oscillation Sensitivity" , **Hai-Jun Yang**, R. Van de Water, 04/27/2006.
- BooNE-TN170, "Proposal to Open Box with Less Than One Sigma Oscillation nue CCQE Events", by Byron. P. Roe, **Hai-Jun Yang**, 11/15/2005.
- BooNE-TN163, "Studies of Boosted Decision Trees for MiniBooNE Particle Identification", by **Hai-Jun Yang**, Byron P. Roe, Ji Zhu, 07/08/2005.
- BooNE-TN151, "Retuning of R-Fitter & PID for Dec'04 Baseline", by Byron P. Roe, **Hai-Jun Yang**, 01/08/2005.
- BooNE-TN147, "The Performance of R-Fitter Particle Identification", by **Hai-Jun Yang**, Byron P. Roe, 11/18/2004.
- BooNE-TN127, "An Alternative Particle ID Technique: the Boosting Algorithm", by **Hai-Jun Yang**, Byron P. Roe, J. Zhu, 5/5/2004, Revised 6/7/2004, Revised 7/2/2004.
- BooNE-TN123, "Brief Manual for Using Boost Programs" , by Byron P. Roe, **Hai-Jun Yang**, 4/20/2004.
- BooNE-TN118, "$\nu_\mu \rightarrow \nu_e$ Oscillation Sensitivity in the MiniBooNE Experiment by using the Boosting Particle ID", by **Hai-Jun Yang**, Byron P. Roe, J. Zhu, 3/18/2004.
- BooNE-TN113, "Particle Identification in the MiniBooNE Experiment by using the Boosting Algorithm" , by **Hai-Jun Yang**, Byron P. Roe, J. Zhu, 2/4/2004, Revised 2/13/2004, Revised 2/23/2004.
- BooNE-TN112, "ν_e and π^0 separation in the MiniBooNE Experiment by using the Boosting Algorithm" , by Ji Zhu, **Hai-Jun Yang**, Byron P. Roe, 1/9/2004.

Proceedings and Technical Notes (10) for International Linear Collider

- **Hai-Jun Yang**, Keith Riles, *High-precision Absolute Distance Measurement Using Dual-Laser Frequency Scanned Interferometry Under Realistic Conditions*, 09/21/2006. (Physics/0609187)

- Proceeding paper for 2005 ALCPG & ILC Workshop - Snowmass, USA, "Frequency Scanned Interferometry for ILC Tracker Alignment", by **Hai-Jun Yang**, Sven Nyberg, Keith Riles, 11/30/2005.

- Proceeding paper for 2005 International Linear Collider Workshop (LCWS05), "Frequency Scanned Interferometry for the ILC Tracker Alignment", by **Hai-Jun Yang**, Sven Nyberg, Keith Riles, 06/27/2005. (Physics/0506197)

- Proceeding paper for 2005 International Linear Collider Workshop (LCWS05), "Impact of Tracker Design on Higgs and Slepton Measurements", by **Hai-Jun Yang** and Keith Riles, 06/27/2005. (Physics/0506198)

- American Linear Collider Working Group, *Linear collider physics resource book for Snowmass 2001*, SLAC-R-570, May, (2001).
  Part 1. Introduction, hep-ex/0106055

- American Linear Collider Working Group, *Linear collider physics resource book for Snowmass 2001*, SLAC-R-570, May, (2001).
  Part 2. Higgs and Supersymmetry Studies, hep-ex/0106056

- American Linear Collider Working Group, *Linear collider physics resource book for Snowmass 2001*, SLAC-R-570, May, (2001).
  Part 3. Studies of Exotic and Standard Model Physics: hep-ex/0106057

- American Linear Collider Working Group, *Linear collider physics resource book for Snowmass 2001*, SLAC-R-570, May, (2001).
  Part 4. Theoretical, Accelerator, and Experimental Options, hep-ex/0106058

- "Impact of tracker design on Higgs mass and cross-section resolutions", by **Hai-Jun Yang** & Keith Riles. eConf C010630:E3040,2001.

- "Measurement of Higgs mass and cross-section at a linear collider", by **Hai-Jun Yang** & Keith Riles, eConf C010630:P112,2001.