William M. Lee

Curriculum Vitae

Contact Information

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Education

Ph.D.	Georgia State University, Atlanta, Ga.	December 1999
Dissertation Topic:	"Nuclear dependence of J/ψ and ψ' Production"	
M.S.	Georgia State University, Atlanta, Ga.	August 1997
B.S.E.E.	Univ. of South Carolina, Columbia, S.C.	December 1988

Professional Experience

Engineering Physicist II	Fermi National Accelerator Lab	2013-present
Adjunct Instructor	Sanford-Brown College	2012-2013
Applications Physicist II	Fermi National Accelerator Lab	2008-2012
Applications Physicist I	Fermi National Accelerator Lab	2006-2008
Research Scientist	Northern Illinois University	2006
Research Scholar Scientist	Florida State University	2005-2006
Research Associate	Florida State University	2000-2005
Research/Teaching Asst.	Georgia State University	1993-1999
Engineer	Columbia Research Corporation	1990-1991
Instructor	Midlands Technical College	1989-1990
Teaching Assistant	University of South Carolina	1987-1990

Research Experience

- Intensity Frontier, 2013-present
  - Minos Underground Areas Coordinator
    As underground coordinator I work with MINOS, MINERvA, NOvA, dark matter, and any other test experiments that need Fermilab's underground environment. The underground coordinator maintains and ensures the safety of the underground areas and experiments and helps the experiments get the highest quality physics data. In addition, the underground coordinator coordinates all of the tours of the underground.
- The DØ Experiment, 2000-present
  DØ is a collaboration of scientists from 76 institutions located in 19 countries spread out on four continents. DØ uses collisions produced at the Tevatron of protons and anti-protons at an energy of two TeV to study the fundamental nature of matter. The work at DØ continues to expand our understanding of standard model particles, while searching for the possibility of physics beyond the standard model.
  - Run Coordinator
    Since January of 2005, I have served as one of the two DØ Run Coordinators. As a Run Coordinator, I coordinate of all aspects of the DØ experiment's data

collection: from beam collisions to the writing of events to tape, from training and staffing of the control room to maintaining the detector, from coordinating shutdown activities to starting up the detector after a shutdown. The Run Coordinators optimize detector operations ensuring that DØ collects the highest quantity and quality data possible. The Run Coordinator is the primary contact person between DØ and Fermilab's Accelerator Division and is responsible for negotiating the day to day conditions of the experiment's operations. The Run Coordinator reports on DØ's operational status to the Fermilab Directorate. I coordinate the Data Acquisition (DAQ) shifts and am a tutor/on-call expert for the Captain and DAQ shifters. The Run Coordinator oversees the safety of personnel and equipment in the control room and detector.

- Online System Manager
  In January of 2006, I began managing the online system for the DØ experiment. The Online System is a 400 node computing cluster that supports the gathering and monitoring of DØ data. The Online System Manager is the point of contact between the Online system, the DØ management, and the Computing Division. In this role I oversee and assist in system administration, troubleshooting, budgeting, and upgrades as well as coordinating and participating in online application development.
- Triggermeister
  During 2003-2004, I was Triggermeister for DØ. In this post I created and organized all of the trigger lists for data collection, commissioning new detectors, and monitoring the operation of the detector. I developed new trigger lists which allowed DØ to operate at higher luminosities without decreasing the high quality of our physics data, while balancing the needs of the different physics groups.
- Silicon Track Trigger (STT)
  From January 2000 until January 2004, I was the STT commissioning coordinator. Under my watch the STT grew from a set of boards in a single test crate to an integrated part of the data acquisition system. In addition, I was responsible for writing all of the downloading and monitoring software for the STT system using a combination of VxWorks, EPICS, C, and Python.
- B Physics
  I assisted in quarkonia polarization studies in the di-muon channel and the understanding and analysis of the properties of the X(3783) particle. I continue to be a member of the B physics group and review B physics papers.
- Data Acquisition and Online Systems
  During 2001-2002, I was the data acquisition system (DAQ) manager. I was responsible for ensuring the smooth operation of the DØ experiment's DAQ. I coordinated and was lead trainer of the DØ DAQ shifter team. From 2000-2003, I was the Online/Controls Systems liaison to the calorimeter detector and one of a handful of control experts.
- Linux System Manager
  Since 2001, I have been a senior system manager for the ClueDØ cluster and during 2011-12 I took over leadership of the group of ClueDØ administrators. ClueDØ is a Linux cluster of more than 400 desktop nodes which provides enough processing power to analyze hundreds of gigabytes of data per day. The System Managers have the responsibility for installing new nodes, maintaining existing nodes, keeping the system secure, and operating the batch system.
- Committees and Service
  - DØ Institutional Board
    The DØ Institutional board is the governing body of the DØ experiment. In

2011 I was elected by the Fermilab group to be their representative on the Institutional board.

- Tevatron Closing Ceremony
  In the "Celebrating the Tevatron" webcast, I spoke for the collaboration and narrated the closing events in the DØ control room.
- Online Data Preservation Task Force
  In 2011, I was selected to chair the Online Data Preservation Task Force. The Task Force reviewed the data stored on the online cluster and stored the data needed for potential long term analyses.
- USCMS Operations Program Management Group (OPMG)
  Since 2010, I have served on the OPMG which provides management oversight and advice to the USCMS program and its management. The USCMS group consists of 48 institutions representing the U.S.'s share of CMS.
- Fermilab Particle Physics Division (PPD) Grassroots Safety Committee
  The Fermilab PPD Grassroots Safety Committee meets to discuss and improve the PPD ES&H program. I was nominated to represent DØ on this committee and I am the currently elected spokesperson.
- DØ 2008 Summer Workshop Committee
  I chaired the DØ Prague Workshop Organizing Committee in 2008. This committee defined and scheduled all of the sessions for the week long summer collaboration workshop.
- Editorial Boards
  The Editorial Boards ensure that the analyses meet the DØ qualities and standards. I participate on two Editorial Boards, "The Measurement of the Top mass at DØ" and "The Top Cross-section in the All Jets Channel".
- Emergency Warden
  I have been one of the Emergency Wardens at DØ since 2002. The Emergency Wardens assist with verifying the safety of personnel in the event of an emergency. In addition, I am trained in CPR and the use of an AED.
- Offline Resource Board
  I spent two years as a member of the offline resources board, which managed all of the offline resources at DØ.

- FNAL E866/NuSea, 1995-present
  The NuSea experiment measured the antiquark flavor asymmetry in the nucleon sea. NuSea also studied J/ψ polarization and measured the nuclear dependence for dimuons ranging in mass from 0.5 to 8.0 GeV/c.
  - Charmonia physics
    I performed the complete analysis of J/ψ and ψ′ nuclear dependence data, starting from optimizing the trigger system to the final analysis and calculations. This analysis has provided insight into nuclear suppression effects on J/ψ production. Some of these effects are absorption by the nucleus or by comovers, shadowing of the initial partons, and energy loss and multiple scattering in either the initial or final state. Since J/ψ suppression is a proposed signature of the Quark-Gluon Plasma, this data has been very important in interpreting J/ψ production in ultra-relativistic heavy-ion collisions.
  - Data Acquisition System (DAQ)
    Georgia State contributed the "third level trigger" system to NuSea. This system used multiple digital signal processors (DSPs) on a single board in the DAQ's

VME bus. The DSPs performed complicated data analysis in real time before the data was written to tape. I designed, tested, and implemented the system. This involved programming the DSPs to perform the communication between each other and the rest of the DAQ. In this process I became one of the main experts on the VME portion of the DAQ.

  - E866 Spectrometer
    I was active in all aspects of running the experiment. I performed many of the upgrades and repairs prior to the start of the run, as well as maintenance and monitoring of the spectrometer during data collection.

- BNL RD94, 1994
  Research project, RD94, used test beam at Brookhaven National Lab to develop the design of the muon identifier for PHENIX. I assisted in monitoring the experiment and performed detector maintenance and repair.

Teaching Experience

- Sanford-Brown College
  I taught the three course physics curriculum on ultrasound physics and instrumentation for cardiovascular sonography technicians.
- FNAL
  - Training
    I organized the training of Captain shifters, DAQ shifters, and ClueDØ administrators. I created the majority of training plans, training materials, and reference materials for shifters.
  - Students
    During 2008 and 2009, I supervised summer interns at Fermilab. These students were able to learn gui and web design and make a contribution to the online operations at DØ.
- Georgia State University
  I taught the senior/graduate level electronics lab for four years. I also taught many of the general physics laboratories.
- Midlands Technical College
  I taught algebra based physics courses and their labs.
- University of South Carolina
  I supervised the entire introductory level Astronomy program. I directed the optical and radio observatories. I edited several physics and astronomy study guides.

Engineering Experience:

- Columbia Research Corporation(CRC)
  I assisted in the validation and verification effort for the Advanced Tactical Air Command Central program. CRC also upgraded the Sensor Monitoring Central (SMC) and the Communication and Data Analysis Central (CDAC) shelters which were components of the Intelligence Analysis System. I was a team leader for the upgrade of these shelters. I tested and repaired the shelter radios and receivers. The SMC and CDAC shelters were used and performed well in Operation Desert Storm.