Wee Don Teo — Curriculum Vitae

CONTACT INFORMATION

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EDUCATION

Ph.D. Physics, *Cornell University* **January, 2013**

Thesis: *Search for Supersymmetry with b-quark Jets and Missing Transverse Energy in pp Collisions at $\sqrt{s} = 7$ TeV*
Advisor: Peter Wittich

M.Sc. Physics, *Cornell University* **June, 2010**
B.Sc. Mathematics and Physics, *University of Toronto* **June, 2007**

RESEARCH EXPERIENCE

Compact Muon Solenoid (CMS) Experiment

Ph.D. Student, Cornell University **August, 2008 - January, 2013**

- Member of the CMS experiment at the CERN laboratory in Geneva, Switzerland.
- Developed a suite of data quality monitoring (DQM) visualization software tools for the detector trigger systems. The tools provide the DQM shift crew real-time diagnostics on the performance of the trigger systems and issue alarms when unexpected trigger rates are detected.
- Worked in tight-knit teams on large-scale data analysis projects for the measurement of the production rate of the top quark and the search for new-physics particles. Analysis responsibilities included the processing and storing of the datasets, the optimization of the event selection strategy, the determination of efficiencies and systematic uncertainties, and the development of novel background-estimation methods.

Tokai-to-Kamioka (T2K) Experiment

Undergraduate Research Project, University of Toronto **September, 2006 - May, 2007**

- Integral member of the Optical Transition Radiation (OTR) proton beam monitor group.
- Built simulation model of beam monitor system in ASAP™ ray-tracing software framework and studied effects of system misalignment and light efficiency on beam image.
- Evaluated impact of beam size uncertainty on final neutrino measurements using Monte Carlo simulations.

Summer Research Assistant, York University **May, 2006 - August, 2006**

- Implemented pattern-finding and distortion correction methods for calibrating beam images using beam monitor system prototype and custom-made ray-tracing simulations.

Collider Detector at Fermilab (CDF) Experiment

Undergraduate Research Project, University of Toronto **January, 2006 - May, 2006**

- Studied various systematic uncertainties on the measurement of the top quark mass using the Neutrino Weighting Algorithm method in the dilepton decay channel.

Quantum Optics Group

Summer Research Assistant, University of Toronto **May, 2004 - August, 2004**

- Developed a Fabry-Perot interferometer for laser calibration.
- Repaired and improved functionality of laser diode modules using LabVIEW platform.

Teaching Experience

Cornell University, Ithaca, New York, USA
Teaching Assistant and Grader **August, 2007 - May, 2009**

- Conducted weekly tutorial and laboratory sessions, prepared quizzes, and graded homework sets and examinations in fundamental physics courses for engineers and pre-med majors. Taught and supervised a total of roughly 60 students per semester.
- Graded homework sets for advanced graduate course in quantum field theory.

Honours and Awards

NSERC (Natural Sciences and Engineering Research Council of Canada) Postgraduate Fellowship **2009 - 2012**

AAPT (American Association of Physics Teachers) Outstanding Teaching Assistant of the Year **2008**

Samuel Beatty In-Course Award, University of Toronto **2007**

Donald G. Ivey Scholarship in Physics, University of Toronto **2004**

Technical Skills

- Analysis Tools: Significant experience with ROOT data analysis framework. Past experience in Excel, Maple, Mathematica, NumPy, pandas, R.
- Programming Languages: Proficient in C++. Working knowledge of Java, Python. Past experience in Perl, Unix shell scripts, HTML, CSS.
- Experience with CVS, SVN, Git revision control systems.
- Operating Systems: Significant experience with Unix/Linux, Windows.
- Experience with batch submission systems, grid computing, cloud computing.
- Experience with large-scale data analysis (>100 TB), Monte Carlo simulations, and multivariate regression techniques.
- Experience with SQL in Oracle databases

Selected Publications

- *Search for Supersymmetry in Events with b-quark Jets and Missing Transverse Energy in pp Collisions at 7 TeV,* CMS Collaboration, 2012, Phys. Rev. D 86 072010
- *Measurement of the $t\bar{t}$ Production Cross Section in pp Collisions at 7 TeV in Lepton + Jets Events Using b-quark Jet Identification,* CMS Collaboration, 2011, Phys. Rev. D 84 092004
- *Commissioning of the CMS High-Level Trigger with cosmic rays,* CMS Collaboration, 2010, JINST 5 T03005

Conference Talks, Workshops, and Schools

- *Search for new physics in events with b-jets and missing transverse energy in pp collisions at 7 TeV*, Parallel talk at APS 2012 April Meeting, 31 March to 3 April 2012, Atlanta, GA, USA
- *Monte Carlo Tools for Beyond the Standard Model Physics*, 22-24 March 2012, Cornell University, Ithaca, NY, USA
- *Excellence in Detectors and Instrumentation Technologies*, 13-24 February 2012, FNAL, Batavia, IL, USA

Languages

- Fluent: English, Mandarin. Intermediate: Cantonese, French. Basic: Japanese.