Academic CV - Trevor P. Stewart

Contact Information
90 Charing Cres.
Fredericton, New Brunswick
E3B 4R7
Canada

Phone +15064721173
Skype-in +81(0)5031368145
E-mail stewartt1982@gmail.com

WORK HISTORY - RESEARCH

Postdoctoral Research Associate
/Rutherford Appleton Laboratory — June 2013 to January 2018

T2K

- Highly involved in the operation and maintenance of the T2K data acquisition system hardware and software and T2K run coordination.
- Developed a selection for charged current anti-neutrino π^- events in an anti-neutrino beam at T2K.
- In charge of data distribution on the GRID and maintaining of data distribution software.

Hyper-Kamiokande

- Research into the requirements needed for the data acquisition system for the planned Hyper-Kamiokande detector.
- Development of trigger algorithms for the Hyper-Kamiokande detector, concentrating on triggers to lower the low energy threshold of the detector.
- Software development work on the Hyper-Kamiokande detector simulation to allow more flexible implementation of digitisation of analogue signals and trigger systems.

Graduate Student/University of Toronto — March 2006 to August 2012

ZEUS

- Developed an analysis for charm production in charged current deep inelastic scattering analysis using reconstructed secondary vertices and impact parameter techniques. This analysis was the first observation of charm production in charged current deep inelastic scattering at ZEUS by this technique.
- Developed an analysis for high-Q^2 neutral current e^+p deep inelastic scattering using the HERA polarised positron beam (see publications).
- Performed studies evaluating the effectiveness of a neural network based electron finder in the context of high-Q^2 neutral current e^+p deep inelastic scattering.
- Corrections to the ZEUS experiment Monte Carlo detector simulation using data-driven techniques.
- Worked on validating the common ntuple (CN) project at ZEUS for long term data storage.
- Contributed to the running, maintenance and calibration of the ZEUS calorimeter and high level Third Level Trigger.

Summer Research Assistant/University of Toronto — May 2005 to August 2005

ZEUS

- Worked on the ZEUS Third Level Trigger, providing day to day support and testing of new trigger configurations.
- Studied the effects of backsplash from the ZEUS calorimeter on the measurement of the kinematic variables.

Summer Research Assistant/University of Toronto — May 2004 to August 2004

ZEUS

- Worked on the ZEUS Third Level Trigger, providing day to day support and testing of new trigger configurations.
- Studied the reconstruction of kaons in the ZEUS detector.

WORK HISTORY - TEACHING

University of Toronto

Teaching Assistant — September 2008 to April 2010

- Instructor for PHY 224 - Practical Physics I (Laboratory)
- Responsible for the supervision and evaluation of 1st year physics and engineering science students. Special attention paid to error analysis, data collection techniques and experimental design.

Teaching Assistant — September 2007 to April 2008

- Instructor for PHY 151/152 - Foundations of Physics (Laboratory)
- Responsible for the supervision and evaluation of 1st year physics students. Special attention paid to error analysis, data collection techniques and experimental design.

University of New Brunswick

Teaching Assistant — September 2005 to December 2005

- Instructor for PHYS 1081 - Foundations of Physics for Engineers (Laboratory)
- Responsible for the supervision and evaluation of engineering students taking their first physics laboratory course.physics students.

SKILLS

- Expertise in a number of computer languages: C/C++, FORTRAN, perl, and python. Some experience with other languages such as assembly languages (x86, 68HC11), R and Java.
- Extensive experience with Linux and Unix systems for software development. Operational experience with Windows and Mac OSX.
- Excellent data analysis skills through physics analysis on a variety of experiments.
- Extensive experience with distributed and GRID computing.
- Experience with CUDA through the implementation of a prototype Hyper-Kamiokande trigger, and via participation in the Brookhaven GPU Hackathon 2017.
- Knowledge of commonly used libraries for machine learning such as numpy, scipy, scikit-learn, tensorflow
- Experienced at giving presentations on technical topics to a wide variety of audiences (both experts and non-experts)
- Proven ability to manage a team of researchers while acting as T2K run coordinator.

EDUCATION

University of Toronto, Toronto, Ontario, Canada

PhD, Physics — July 2012

- Thesis topic: *Measurement of High-Q^2 Neutral Current cross-sections with longitudinally polarised positrons with the ZEUS Detector*

MSc, Physics — August 2007

- Thesis topic: *Charm production in High-Q^2 Charged Current Deep Inelastic Scattering*

University of New Brunswick (UNB), Fredericton, New Brunswick, Canada

- BSc, Physics with honours — December 2005
- BCS, Computer Science First Division — December 2005

AWARDS **Awards and Scholarships**

- Ontario Graduate Scholarship (OGS), 2007-2008
- Natural Sciences and Engineering Research Council of Canada (NSERC) Undergraduate Student Research Award, 2004
- Dr. A. Wilmer Duff Memorial Prize, 2005-2006
- Frank and Isa Pridham Memorial Scholarship, 2001-2002
- UNB Fredericton Scholarship Guarantee, 2000-2001

PUBLICATIONS To see all publications, see
http://inspirehep.net/author/profile/T.P.Stewart.1 for reference.
Participated in the analysis/preparation of the following papers:

- S. Chekanov *et al. [ZEUS Collaboration], Measurement of high-Q^2 neutral current deep inelastic ep scattering cross sections with a longitudinally polarised electron beam at HERA*. Eur. Phys. J. C 62, 625 (2009)
- H. Abramowicz *et al. [ZEUS Collaboration],Measurement of positron-proton neutral current cross sections at high Bjorken-x with the ZEUS detector at HERA*. Phys. Rev. D89, 072007 (2014)
- K. Abe *et al. [Hyper-Kamiokande Proto-Collaboration], Hyper-Kamiokande Design Report*. KEK Preprint 2016-21/ICRR-Report-701-2016-1

Primary author on:

- H. Abramowicz *et al. [ZEUS Collaboration],Measurement of high-Q^2 neutral current deep inelastic e^+p scattering cross sections with a longitudinally polarised electron beam at HERA*. Phys.Rev. D87, 052014 (2013)
- T. Stewart (on behalf of the ZEUS Collaboration) *Measurement of High-Q^2 Charged and Neutral Current Deep Inelastic e^+p Scattering Cross Sections with a Longitudinally Polarised Positron Beam at HERA*. PoS EPS-HEP2011:367.

CONFERENCES, WORKSHOPS AND PROCEEDINGS Trevor Stewart, speaker at The Europhysics Conference of High-Energy Physics, Grenoble, France, July 21-27, 2011. *Measurement of High-Q^2 Charged and Neutral Current Deep Inelastic e^+p Scattering Cross Sections with a Longitudinally Polarised Positron Beam at HERA*. Proceedings in PoS EPS-HEP2011:367.

Trevor Stewart, speaker at The XIX International Workshop on Deep-Inelastic Scattering and Related Subjects, Newport News, VA, USA, April 11-15, 2011. *Measurement of High-Q^2 Neutral and Charged Current Deep Inelastic e^+p Scattering Cross Sections with a Longitudinally Polarised Positron Beam at HERA.*

Trevor Stewart, speaker at the 5^{th} International Conference on New Frontiers in Physics, Crete, Greece, July 6-14, 2016. *Overview of neutrino physics: Neutrino oscillation measurements and future prospects.*

Trevor Stewart, GPU Hackathon 2017, Brookhaven National Laboratory, 5-9 June 2017. Team The fasted trigger in the east developed a fast vertexing trigger for the Hyper-Kamiokande detector, already ported to CUDA, for optimisation. Result was a 5.5x speed gain.

LANGUAGES Fluent in English and basic knowledge of French and Japanese.

REFERENCES

- Prof. Alfons Weber (alfons.weber@stfc.ac.uk), University of Oxford/STFC, Line Manager.
- Prof. Giles Barr (Giles.Barr@physics.ox.ac.uk), University of Oxford.

- Dr. Helen OKeeffe (h.okeeffe@lancaster.ac.uk), Lancaster University.