Trevor P. Stewart

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PROFESSIONAL SUMMARY

Experienced researcher in experimental particle physics with experience working on a number of experiments both running and in development. Have worked on several cross-section analysis on the ZEUS detector and T2K detectors. On the planned Hyper-Kamiokande detector I have performed studies on the requirements for a data acquisition and trigger system, and software development for detector simulations. Strong background in computer science, with experience in a number of different computer languages. Solid skills in physics analysis, mathematics, statistics and algorithms. Experience in managing a team of researchers through activities as data acquisition expert and run coordinator on the T2K experiment.

WORK HISTORY - RESEARCH

Postdoctoral Research Associate — June 2013 to present

T2K

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

Hyper-Kamiokande

- Study requirements needed for a 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 WCSim to allow more flexible implementation of digitisation of analogue signals and trigger systems.

Graduate Student — March 2006 to present

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.
- Measured the shape of the Z_{vtx} distribution for the 2006-2007 positron running. Showed the need for more careful treatment of the Z_{vtx} measurement for future analysis.
- 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 — May 2005 to August 2005

- Worked on the ZEUS Third Level Trigger.
- Studied the effects of backsplash from the ZEUS calorimeter on the measurement of the kinematic variables.

Summer Research Assistant — May 2004 to August 2004

- Assisted with the maintenance, operation, debugging and updating of the ZEUS Third Level Trigger.

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 first year physics and engineering science students. Special attention was 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 first year physics students. Special attention was 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 first year engineering students.

SKILLS

- Expertise in a number of computer languages: C/C++, FORTRAN, perl, and python.
- Some knowledge and experience with assembly languages (x86, 68HC11), CUDA, 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 batch and GRID computing.

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
I was enrolled in a joint program for science and computer science and received two separate undergraduate degrees.
BSc, Physics — December 2005
- Graduated with Honours

BCS, Computer Science — December 2005
- Graduated with First Division

AWARDS

Major Awards

- Ontario Graduate Scholarship (OGS), 2007-2008
- Natural Sciences and Engineering Research Council of Canada (NSERC) Undergraduate Student Research Award, Summer 2004

University of New Brunswick (UNB)

- 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 of the following papers:
- S. Chekanov *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* 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)

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)

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 5th 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 O'Keeffe (h.okeeffe@lancaster.ac.uk), Lancaster University.