Samuel Hall | Curriculum Vitae

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Profile

Doctoral student at Imperial College London with experience in the analysis of data from the LHCb detector, which is located on the Large Hadron Collider. Used a variety of computational and statistial techniques to analyse these datasets, and motivated by applying them to others. Good work ethic, problem solving skills, quick at adapting to new problems working as part of a team or independently.

Education

Imperial College London & CERN
PhD. High Energy Physics *2011–present*
- Thesis title: Searching for beyond the Standard Model physics using direct and indirect methods at LHCb

University of Durham – **St. Aidan's College**
First Class (MPhys) Theoretical Physics *2007–2011*

Hill's Road Sixth Form College – **Cambridge**
A-Levels *2004–2006*
Maths (A), Further Maths (A), Physics (A), Chemistry (A), History AS (A)

Comberton Village College – **Cambridge**
Secondary school *1999–2004*
GCSEs (6A* 2A 1B); GNVQ ICT (Dist.); AS-Level History (A)

Computing Skills

Languages: C++, Python, bash scripting, MatLab

Software frameworks: ROOT/RooFit/TMVA, numpy/scipy/matplotlib/pandas/sklearn

Tools: Git, SVN, LaTeX, MS Office

OS: Linux, Windows

Empolyment History

Imperial College London and CERN, Geneva
PhD. research *2011–present*
Researcher working on LHCb experiement at the Large Hadron Collider, two years (June 2012 – June 2014) were spent at CERN. Work involved the analysis of data collected by the detector using computing techniques including machine learning algorithms. Had experience working both independently and in small groups, and frequently presented to the collaboration. Involved with the development of software package in the LHCb framework; designed for collaboration wide use. Used Monte Carlo simulations to understand physics data. Use of statistical techniques.

Imperial College London
Student Teaching Assistant *Oct 2014–Jan2015*
- Teahcing and demonstrating Level 1 python course.
- Ensuring students had an understanding of the language and how to use it.
- Assessed written reports which used the techniques students learnt.

Cambridge Consultants
Technology Scholar *2006–2010*
Worked in the Medical Electronics Group (previosly named Wireless ASICs — Application Specific ICs) often in projects with large groups of engineers.
- Full time employee in 2006-2007, worked summers in following years.
- Development of novel optical devices
- Individual project

Café Staff
Waitrose, Cambridge *2004–2006*

Other

Driving: Have a full, clean driving licence.

Software
Other than software written for analysis of LHCb data, have authored wol.
Wol is a command line manager of pdfs, particularly designed to organise arXiv papers. It is only a small project, but the tool is used by a handful of people to great effect.

Sports
Enjoy many sports, main interests are:
- Squash. Captained my college team at Durham University. Played in the third team at Imperial. Became an England Squash Level 1 registered coach.
- Cycling. Part of the Imperial cycling club. Cycled from Geneva to London last summer (~ 550 miles, 6 days in the saddle).
- Skiing and Sailing. Have enjoyed these sports for many years, but did a great deal whlie living in Geneva.

Other activities
Other hobbies include:
- Travel. Excited by exploring new places, spent the summer of my gap year travelling around South-East Asia and South America. Since then travelled to many places in groups and alone. Enjoy seeing new places.
- Hiking. Mercantour etc.
- Photography. Pad out as well.

Publications and Conference presentations

First observations of the rare decays $B^+ \to K^+\pi^+\pi^-\mu^+\mu^-$ and $B^+ \to \phi K^+\mu^+\mu^-$ **Publication**
arXiv:1408.1137 *Aug 2014*

Towards measurements of CKM parameters with loops and trees at LHCb **Conference**
Institute of Physics High Energy Particle and Astro Particle Physics (London, UK) *Apr 2014*

Rare decays at LHCb **Conference**
International Conference on New Frontiers in Physics 2013 (Crete, Greece) *Aug 2013*

Search for rare decays of the form $B \to hhh\mu\mu$ **Conference**
LHCb week (Krakow, Poland) *Sept 2013*

First evidence for the annihilation decay mode $B^+ \to D_s^+\phi$ **Publication**
arXiv:1210.1089 *Oct 2012*

References

Available on request