

Samuel C. P. Hall | Curriculum Vitae

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Profile

Doctoral student at Imperial College London with experience in of analysing large datasets from the LHCb detector, which is located on the Large Hadron Collider. I have used a variety of computational and statistical techniques to analyse these data, and am motivated by applying them to financial data in a fast-paced intellectual environment. Good work ethic, problem solving skills, and quick at adapting to new problems.

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

Sixth Form College

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, L^AT_EX, MS Office

OS: Linux, Windows

Employment History

Imperial College London and CERN, Geneva

PhD. research

2011–present

Researcher working on LHCb experiment 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. 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. Monte Carlo simulations and statistical techniques applied to data to understand the physics involved.

Imperial College London

Student Teaching Assistant

Oct 2014–Jan2015

- Demonstrator in Level 1 Python course.
- Ensure students have understanding of the language and how to use it.
- Assess written reports using the techniques students learnt.

Cambridge Consultants

Technology Scholar

2006–2010

Part of the Medical Electronics Group, which was previously 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 working on a wrist-worn PPG device.

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 while 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 $B^+ \rightarrow K^+ \pi^+ \pi^- \mu^+ \mu^-$ and $B^+ \rightarrow \phi K^+ \mu^+ \mu^-$ **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 $B \rightarrow hhh\mu\mu$ **Conference**
LHCb week (Krakow, Poland) *Sept 2013*

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

References

Available on request