Dr Alexander Shires

Experimentelle Physik 5
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Education

Imperial College London, UK

Ph.D., High Energy Physics , *October 2013*

Thesis title: *Exploring $b \to s$ electroweak penguins at LHCb*

Supervisor: Prof. Ulrik Egede

MSci (Hons), Physics with Theoretical Physics, *October 2009*

First Class honours degree.

Masters: *Topological Measures of the Cosmic Microwave Background*

Supervisor: Dr. Carlo Contaldi

Hardenhuish School, Wiltshire, UK

A-Levels, *August 2005*

Physics (A), Maths (A), Further Maths (A), Chemistry (A)

GCSEs, *August 2003*

3 A*, 3 A, 3 B

Professional Experience

Technische Universität Dortmund, Germany

Post-doctoral research assistant **June 2013 to present**

TODO

CERN, Switzerland

PhD student **Aug 2010 to Dec 2011, Aug 2014 to Sep 2014**

First placement as part of my PhD studentship, lived in Geneva and worked at CERN for 14 months. Participated in the running of the LHCb experiment alongside my research. Second placement to work on the LHCb trigger system.

Imperial College London, UK

Undergraduate research placement **Summer 2008**

Developed and integrated autonomous remote testing for the Ganga project. Added reporting options to show test failure differences between different versions.

Westinghouse Rail Systems, Wiltshire, UK

Scholarship placement as a junior engineer **Summer 2006, Summer 2007**

As a scholarship given to the best 3 students from local schools, worked as the sole data analyst for the first live railway trial of a multi-million pound project. Invited back for a second year to develop software to test the integration of a new railway track-side communications protocol.

Publications and selected results

D. Das, G. Hiller, M. Jung, and A. Shires, *The $\bar{B} \to \bar{K}\pi\ell\ell$ and $\bar{B}_s \to \bar{K}K\ell\ell$ distributions at low hadronic recoil*, arXiv:1406.6681

LHCb collaboration, R. Aaij *et al.*, *Test of lepton universality using $B^+ \to K^+\ell^+\ell^-$ decays*, arXiv:1406.6482, to appear in Phys. Rev. Lett.

LHCb collaboration, R. Aaij *et al.*, *Differential branching fraction and angular analysis of the decay $B^0 \to K^{*0}\mu^+\mu^-$*, JHEP **08** (2013) 131, arXiv:1304.6325

T. Blake, U. Egede, and A. Shires, *The effect of S-wave interference on the $B^0 \to K^{*0}\ell^+\ell^-$ angular observables*, JHEP **03** (2013) 027, arXiv:1210.5279

LHCb collaboration, R. Aaij *et al.*, *Differential branching fraction and angular analysis of the decay $B^0 \to K^{*0}\mu^+\mu^-$*, Phys. Rev. Lett. **108** (2012) 181806, arXiv:1112.3515

Additional author on 155 papers as a member of the LHCb collaboration.

Invited talks

Searching for new physics in $b \to (s,d)\ell^+\ell^-$ transitions, Seminar, TU Dortmund, October, 2014

Rare heavy flavour decays at the LHC, Frontiers in Particle Physics, Aspen, Jan, 2014

Electroweak penguins at LHCb, Seminar, University of Bonn, October, 2013

Exploring $B^0 \to K^{*0}\mu^+\mu^-$ at LHCb, Seminar, TU Dortmund, April, 2013

Testing the helicity structure of new physics with rare decays at LHCb, Spin-PRAHA, Prague, July, 2012

Angular analysis of $B^0 \to K^{*0}\mu^+\mu^-$ at LHCb, IOP HEPP Annual Meeting, Queen Mary, University of London, April, 2012

Teaching experience

2014 Project supervision, 4^{th} year undergraduate course, TU Dortmund.
2014 Project supervision, 3^{rd} year undergraduate course, TU Dortmund.
2014 Particle identification seminar, part of the 4^{th} year particle detectors lecture course, TU Dortmund.
2012 Computational lab demonstrator, 3^{rd} year undergradudate course, Imperial College London.
2011 Experimental lab demonstrator, 3^{rd} year undergraduate couse, Imperial College London.

Skills

C++, Python, Fortran, SVN, Git, MS Office, LaTeX, Vim

Windows (XP, 7), Linux (Ubuntu, Scientific Linux)

Full, clean, UK Driving licence (2004).