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Adam Morris

Curriculum vitae

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Employment & education

Postdoctoral researcher CNRS and Aix-Marseille University	Dec 2017 – Feb 2020
Postdoctoral research associate University of Edinburgh	Aug 2017 – Nov 2017
PhD in experimental particle physics University of Edinburgh	Sep 2013 – Sep 2017
MSci (Hons) in physics University of Birmingham	Oct 2009 – Jul 2013

Skills

- HEP data analysis: event selection (using ML for classification), maximum-likelihood fits, limit-setting
- Good track record of presenting regular analysis updates within the collaboration
- Proficiency with C++, Python and shell scripting
- Proficiency with ROOT (incl. TMVA, RooFit and RooStats), GSL, Boost and the LHCb software
- Regular user of version control systems (Git and SVN)
- Experience with collaborative software development
- Familiarity with TMVA, scikit-learn and TensorFlow
- Experience using Grid and HPC resources, such as the Edinburgh and CERN batch services and the LHC Grid
- Experience with analysis preservation and reproducibility tools (Snakemake, Docker, Continuous Integration)

Contributions to physics analysis

Measurement of $R(D^*)$ using hadronic τ decays Major contributions to all parts of the analysis as one of two full-time proponents	2017 – 2020
Amplitude analysis of $\Lambda_b \rightarrow \chi_{c\{1,2\}} p K^-$ decays Development of the amplitude fitter within the TensorFlowAnalysis framework	2017
Amplitude analysis of $B_s^0 \rightarrow \phi K^+ K^-$ decays Primary thesis work and sole full-time proponent	2015 – 2017
Measurement of the $B_s^0 \rightarrow \phi\phi$ branching fraction and search for $B^0 \rightarrow \phi\phi$ Thesis work and sole full-time proponent	2014 – 2015
Measurement of CP violation in $B_s^0 \rightarrow \phi\phi$ decays Fits to the $\phi\phi$ invariant mass	2013 – 2014

Hardware work

Ion feedback monitoring Periodic analysis of photodetectors during operation to predict when they need to be replaced	2015 – 2016
RICH upgrade testbeam Participant in 4 testbeam periods: control-room shifts and data analysis	2014 – 2016
Performance of MaPMTs in magnetic fields Data-taking and analysis at the photodetector test lab at Edinburgh. Results informed part of the design of the RICH upgrade	2013 – 2014

Public outreach

LHCb underground guide 6 tours given in LS2, including one to theorists at the 2019 Implications Workshop	May 2019 –
Participant representing LHCb in an 'Ask Me Anything' session organised by CERN on <i>reddit.com</i>	May 2015
Participant in a <i>Speed Science</i> event at the <i>Glasgow Science Festival</i>	June 2014
Demonstrator at the <i>Discovering the Higgs Boson</i> exhibit at the <i>Big Bang Fair</i> , Birmingham NEC	March 2014

Shifts and responsibilities

MC production model manager	2019 –
Responsibility for managing and updating simulation request templates for the collaboration	
Filtered MC liaison and Semileptonic WG MC liaison	2018 –
Preparation and submission of simulation requests	
Review Committee member	2018 – 2019
Internal reviewer for the $\eta_c(1S)$ cross-section measurement at $\sqrt{s} = 13$ TeV	
L0 trigger piquet shifts (3 weeks)	2018
On-call support for the hardware-level trigger system	
Control room shifts (13× shift leader & 11× data manager)	2015 – 2018
RICH piquet shifts (3 weeks)	2015 – 2016
On-call support for the ring-imaging Cherenkov detectors	

Teaching and supervision

NB: by ‘supervision’ I do not imply official supervisor roles within the university, but day-to-day guidance and instruction.

Supervision of PhD student	2017 – 2020
Dawid Gerstel on the $R(D^*)$ hadronic measurement at Aix-Marseille University.	
Data acquisition and handling	2017
Electronics & programming lab demonstrator for undergraduate students at Edinburgh	
Numerical recipes	2017
Programming lab demonstrator for undergraduate students at Edinburgh	
Supervision of summer student	2015
Rebecca Carrahar at the RICH upgrade testbeam	
Supervision of summer student	2014
Viktoria Hinger in the MaPMT testing lab at Edinburgh	
Supervision of masters student	2013 – 2014
Josh Neill in the MaPMT testing lab at Edinburgh	

Presentations at conferences and workshops

NB: international conferences in **bold**.

GDR Intensity Frontier Annual Meeting	Sommières, November 2019
Talk: <i>Lepton flavour universality in $b \rightarrow c$ transitions</i>	
EPS-HEP 2019	Ghent, July 2019
Talk: <i>CP violation in multi-body charmless b-hadron decays at LHCb</i>	
Franco-Italian Meeting on B Physics	Marseille, October 2018
Talk: <i>Lepton flavour universality violating B decays in trees</i>	
CKM 2018	Heidelberg, September 2018
Talk: <i>Tests of lepton flavour universality using semitauonic B decays at LHCb</i>	
PyHEP Workshop	Sofia, July 2018
Talk: <i>Using TensorFlow for amplitude fits</i>	
HQL 2016	Blacksburg, Virginia, May 2016
Talk: <i>Charmless b-meson and b-baryon decays at LHCb</i>	
LHCC Poster Session	CERN, March 2016
Poster: <i>Measurement of the $B_s \rightarrow \phi\phi$ branching fraction and angular analysis of $B_s \rightarrow \phi\pi^+\pi^-$ at LHCb</i>	
UK HEP forum	Abingdon, November 2015
Poster: <i>Measurement of the $B_s \rightarrow \phi\phi$ branching fraction and search for $B^0 \rightarrow \phi\phi$ at LHCb</i>	
Beauty 2014	Edinburgh, July 2014
Poster: <i>Measurement of CP violation in $B_s^0 \rightarrow \phi\phi$ decay</i>	

Schools attended

Ecole de Gif school in B physics	Clermont-Ferrand, September 2018
IN2P3 School Of Statistics	La Londe Les Maures, May 2018
European School of High-Energy Physics	Bansko, September 2015
Young Experimentalists and Theorists Institute (YETI)	Durham University, January 2015
STFC HEP summer school	University of Warwick, September 2014

Papers

Oscillations of B_s^0 mesons as a probe of decays with invisible particles,
A. Poluektov and A. Morris, arXiv:1911.12729 [hep-ph], submitted to JHEP

Test of the photon detection system for the LHCb RICH Upgrade in a charged particle beam,
M. K. Baszcyk et al, JINST **12** (2017) 01012

Measurement of the $B_s^0 \rightarrow \phi\phi$ branching fraction and search for the decay $B^0 \rightarrow \phi\phi$,
LHCb collaboration, JHEP **10** (2015) 053

Measurement of CP violation in $B_s^0 \rightarrow \phi\phi$ decays,
LHCb collaboration, PRD **90**, (2014) 052011

Characterisation and magnetic field properties of multianode photomultiplier tubes,
S. Eisenhart et al, NIM **A766** (2014) 167-170

Conference proceedings

CP violation in multi-body charmless b-hadron decays at LHCb,
A. Morris, on behalf of the LHCb collaboration, PoS (EPS-HEP 2019) 215

Using TensorFlow for amplitude fits,
A. Morris, on behalf of the TensorFlowAnalysis developers, DOI:10.5281/zenodo.1415413

Charmless b-meson and b-baryon decays at LHCb,
A. Morris, on behalf of the LHCb collaboration, PoS (HQL 2016) 059

Measurement of CP violation in $B_s^0 \rightarrow \phi\phi$ decays,
A. Morris, on behalf of the LHCb collaboration, PoS (Beauty 2014) 064