

## Employment & education

Postdoctoral researcher CNRS and Aix-Marseille University (Olivier Leroy)	Dec 2017 – Feb 2020
Postdoctoral research associate University of Edinburgh (Greig Cowan)	Aug 2017 – Nov 2017
PhD in experimental particle physics University of Edinburgh	Sep 2013 – Sep 2017
<i>Thesis title</i> <i>Measurements of charmless <math>B_s</math> meson decays at LHCb</i> <i>Supervisors</i> Matthew Needham and Franz Muheim	

MSci (Hons) in physics University of Birmingham	Oct 2009 – Jul 2013
<i>Thesis title</i> <i>A possible lepton flavour violation search at NA62</i> <i>Supervisors</i> Cristina Lazzeroni and Evgueni Goudzovski	

## Contributions to LHCb physics analysis

Measurement of $R(D^*)$ using hadronic $\tau$ 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

## LHCb hardware work

Ion feedback monitoring Periodic analysis of the level of ion feedback in the HPDs installed in the RICH to predict when they need to be replaced.	2015 – 2016
RICH upgrade testbeam Participant in 4 testbeam periods, during which I took data-taking shifts and improved the automation of the data acquisition and processing. I also performed the dark count analysis and developed an online alignment tool.	2014 – 2016
Performance of MaPMTs in magnetic fields Per-pixel efficiency measurements as a function of magnetic field strength. This work was the basis of the decision to use $\mu$ -metal shielding in the RICH upgrade.	2013 – 2014

## Shifts and responsibilities in LHCb

MC production model manager Responsibility for simulation request models for the collaboration	2019 –
Filtered MC liaison and Semileptonic WG MC liaison Preparation and submission of simulation requests	2018 –
Review Committee member Measurement of the $\eta_c(1S)$ production cross-section at $\sqrt{s} = 13$ TeV	2018 – 2019
L0 trigger piquet shifts (3 weeks)	2018
Control room shifts (13 $\times$ shift leader & 11 $\times$ data manager)	2015 – 2018
RICH piquet shifts (3 weeks)	2015 – 2016

## Skills

- HEP data analysis: multivariate selection, maximum-likelihood fits, amplitude analysis, template fits, limit-setting
- Proficiency with C++, Python and shell scripting.
- Proficiency with ROOT (incl. TMVA, RooFit and RooStats), GSL, Boost and the LHCb software
- Proficiency with version control systems (Git and SVN) and experience with collaborative software development
- Experience using distributed computing resources, such as the Edinburgh and CERN batch services and the LHC Grid
- Experience with analysis preservation and reproducibility tools (Snakemake, Docker, Continuous Integration)
- Experience testing the performance of photodetectors

## 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

## Public outreach

LHCb underground guide May 2019 –

6 tours given in LS2, including one to theorists at the 2019 Implications Workshop

Participant representing LHCb in an 'Ask Me Anything' session organised by CERN on *reddit.com* May 2015

Participant in a *Speed Science* event at the *Glasgow Science Festival* June 2014

Demonstrator at the *Discovering the Higgs Boson* exhibit at the *Big Bang Fair*, Birmingham NEC March 2014

## Presentations at conferences and workshops

**NB:** international conferences in **bold**.

GDR Intensity Frontier Annual Meeting Sommières, November 2019

Talk: *Lepton flavour universality in  $b \rightarrow c$  transitions*

**EPS-HEP 2019** Ghent, July 2019

Talk: *CP violation in multi-body charmless  $b$ -hadron decays at LHCb*

Franco-Italian Meeting on B Physics Marseille, October 2018

Talk: *Lepton flavour universality violating  $B$  decays in trees*

**CKM 2018** Heidelberg, September 2018

Talk: *Tests of lepton flavour universality using semitauonic  $B$  decays at LHCb*

PyHEP Workshop Sofia, July 2018

Talk: *Using TensorFlow for amplitude fits*

**HQL 2016** Blacksburg, Virginia, May 2016

Talk: *Charmless  $b$ -meson and  $b$ -baryon decays at LHCb*

LHCC Poster Session CERN, March 2016

Poster: *Measurement of the  $B_s \rightarrow \phi\phi$  branching fraction and angular analysis of  $B_s \rightarrow \phi\pi^+\pi^-$  at LHCb*

UK HEP forum Abingdon, November 2015

Poster: *Measurement of the  $B_s \rightarrow \phi\phi$  branching fraction and search for  $B^0 \rightarrow \phi\phi$  at LHCb*

**Beauty 2014** Edinburgh, July 2014

Poster: *Measurement of CP violation in  $B_s^0 \rightarrow \phi\phi$  decay*

## Schools attended

Ecole de Gif	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. Baszczyk 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

## 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

## Online profiles

CERN GitLab: [gitlab.cern.ch/admorris](https://gitlab.cern.ch/admorris)

GitHub: [github.com/abmorris](https://github.com/abmorris)

Inspire HEP: [inspirehep.net/author/profile/A.B.Morris.1](https://inspirehep.net/author/profile/A.B.Morris.1)

ORCID: [orcid.org/0000-0002-0832-9199](https://orcid.org/0000-0002-0832-9199)