

## Employment

Postdoctoral researcher Dec 2017 – Feb 2020  
CNRS and Aix-Marseille University (Olivier Leroy)

Postdoctoral research associate Aug 2017 – Nov 2017  
University of Edinburgh (Greig Cowan)

## Education

PhD in experimental particle physics Sep 2013 – Sep 2017  
University of Edinburgh

*Thesis title* Measurements of charmless  $B_s$  meson decays at LHCb  
*Supervisors* Matthew Needham and Franz Muheim

MSci in physics Oct 2009 – Jul 2013  
University of Birmingham

*Thesis title* A possible lepton flavour violation search at NA62  
*Supervisors* Cristina Lazzeroni and Evgueni Goudzovski

## Contributions to LHCb physics analysis

Measurement of  $R(D^*)$  using hadronic  $\tau$  decays 2017 – 2020  
Major contributions to all parts of the analysis as one of two full-time proponents

Amplitude analysis of  $\Lambda_b \rightarrow \chi_{c\{1,2\}} p K^-$  decays 2017  
Development of the amplitude fitter within the TensorFlowAnalysis framework.

Amplitude analysis of  $B_s^0 \rightarrow \phi K^+ K^-$  decays 2015 – 2017  
Primary thesis work and sole full-time proponent.

Measurement of the  $B_s^0 \rightarrow \phi\phi$  branching fraction and search for  $B^0 \rightarrow \phi\phi$  2014 – 2015  
Thesis work and sole full-time proponent.

Measurement of CP violation in  $B_s^0 \rightarrow \phi\phi$  decays 2013 – 2014  
Fits to the  $\phi\phi$  invariant mass.

## LHCb hardware work

Ion feedback monitoring 2015 – 2016  
Periodic analysis of the level of ion feedback in the HPDs installed in the RICH to predict when they need to be replaced.

RICH upgrade testbeam 2014 – 2016  
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.

Performance of MaPMTs in magnetic fields 2013 – 2014  
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.

## Shifts and responsibilities in LHCb

MC production model manager 2019 –

Filtered MC liaison 2018 –

Semileptonic WG MC liaison 2018 –

Review Committee member 2018 – 2019

Measurement of the  $\eta_c(1S)$  production cross-section at  $\sqrt{s} = 13$  TeV

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

## Public outreach

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

## Presentations at conferences and workshops

GDR Intensity Frontier Annual Meeting Talk: <i>Lepton flavour universality in <math>b \rightarrow c</math> transitions</i>	Sommières, November 2019
European Physical Society Conference on High Energy Physics (EPS-HEP) Talk: <i>CP violation in multi-body charmless <math>b</math>-hadron decays at LHCb</i>	Ghent, July 2019
XIII Franco-Italian Meeting on B Physics Talk: <i>Lepton flavour universality violating <math>B</math> decays in trees</i>	Aix-Marseille University, October 2018
10th International Workshop on the CKM Unitarity Triangle Talk: <i>Tests of lepton flavour universality using semitauonic <math>B</math> decays at LHCb</i>	Heidelberg University, September 2018
PyHEP 2018 Talk: <i>Using TensorFlow for amplitude fits</i>	Sofia, July 2018
Heavy Quarks and Leptons (HQL) Talk: <i>Charmless <math>b</math>-meson and <math>b</math>-baryon decays at LHCb</i>	Virginia Tech, May 2016
LHCC Poster Session Poster: <i>Measurement of the <math>B_s \rightarrow \phi\phi</math> branching fraction and angular analysis of <math>B_s \rightarrow \phi\pi^+\pi^-</math> at LHCb</i>	CERN, March 2016
UK HEP forum: "Anomalies and Deviations" Poster: <i>Measurement of the <math>B_s \rightarrow \phi\phi</math> branching fraction and search for <math>B^0 \rightarrow \phi\phi</math> at LHCb</i>	STFC, Abingdon, November 2015
B-physics at frontier machines (Beauty) Poster: <i>Measurement of CP violation in <math>B_s^0 \rightarrow \phi\phi</math> decay</i>	University of Edinburgh, July 2014

## 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

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

*Measurement of CP violation in  $B_s^0 \rightarrow \phi\phi$  decays,*  
LHCb collaboration, Phys. Rev. **D90**, (2014) 052011

*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

*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

*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

## Proceedings

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

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

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

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