

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 τ 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 μ -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 | 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

| | |
|---|------------|
| 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 | Sommières, November 2019 |
| Talk: <i>Lepton flavour universality in $b \rightarrow c$ transitions</i> | |
| European Physical Society Conference on High Energy Physics (EPS-HEP) | Ghent, July 2019 |
| Talk: <i>CP violation in multi-body charmless b-hadron decays at LHCb</i> | |
| XIII Franco-Italian Meeting on B Physics | Aix-Marseille University, October 2018 |
| Talk: <i>Lepton flavour universality violating B decays in trees</i> | |
| 10th International Workshop on the CKM Unitarity Triangle | Heidelberg University, September 2018 |
| Talk: <i>Tests of lepton flavour universality using semitauonic B decays at LHCb</i> | |
| PyHEP 2018 | Sofia, July 2018 |
| Talk: <i>Using TensorFlow for amplitude fits</i> | |
| Heavy Quarks and Leptons (HQL) | Virginia Tech, 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: "Anomalies and Deviations" | STFC, 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> | |
| B-physics at frontier machines (Beauty) | University of Edinburgh, July 2014 |
| Poster: <i>Measurement of CP violation in $B_s^0 \rightarrow \phi\phi$ decay</i> | |

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

GitHub: github.com/abmorris

Inspire HEP: inspirehep.net/author/profile/A.B.Morris.1

ORCID: orcid.org/0000-0002-0832-9199