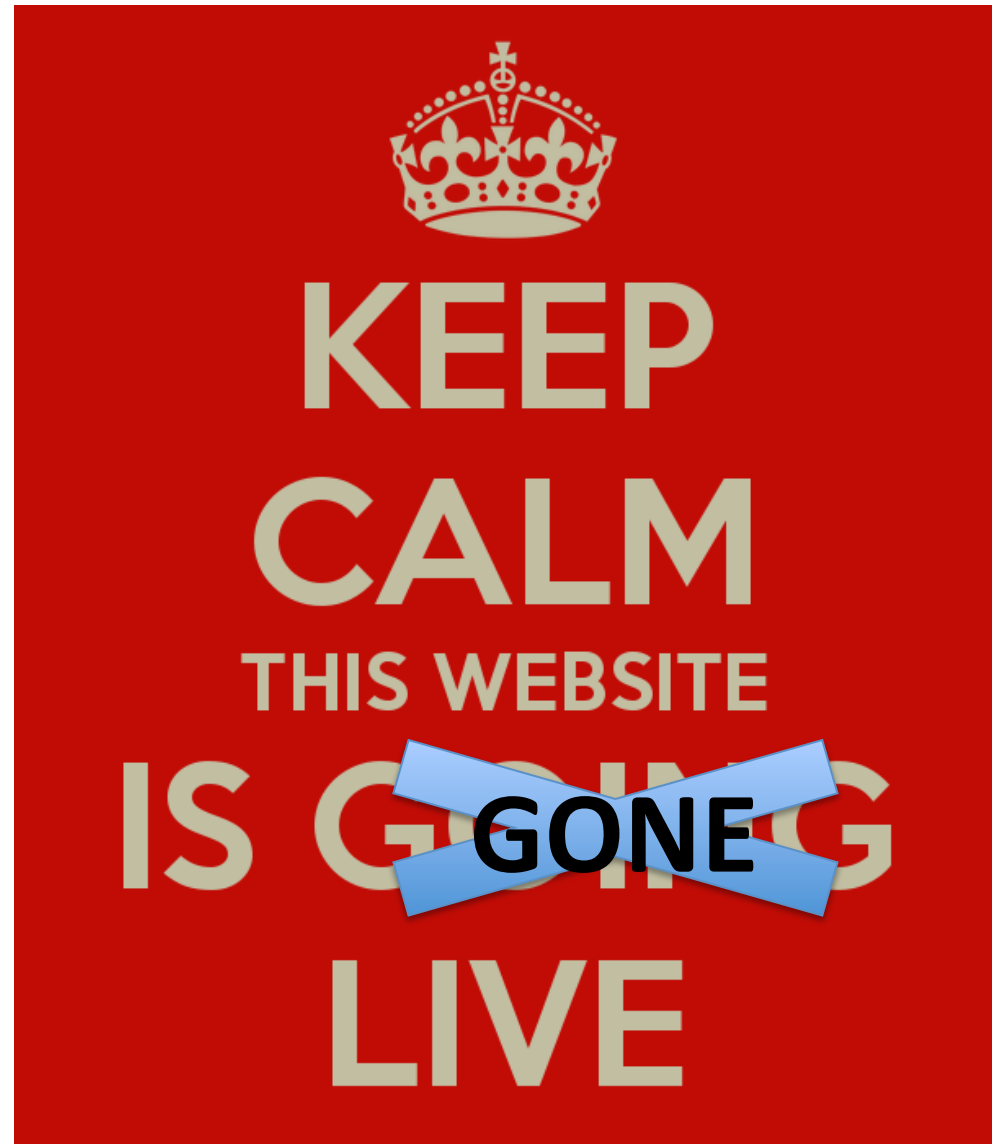


The New PPE website and all that

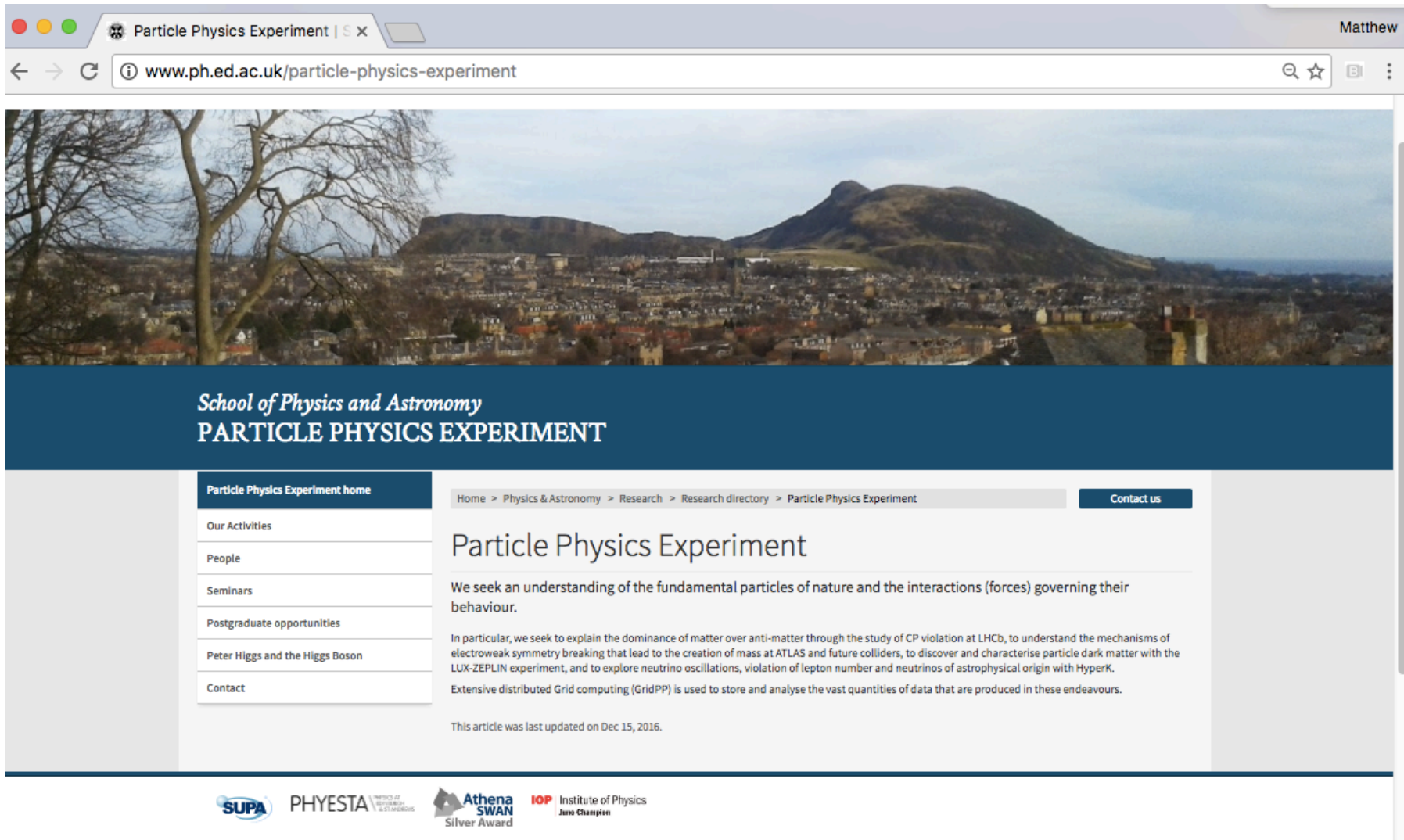
<http://www.ph.ed.ac.uk/particle-physics-experiment>



- Website increasingly part of the public image of the university/college/school/group
 - Drive to have a common look and feel that promotes the activities of the group/university
 - Attract Phd students, provide information on our activities for academic an corporate partners and stakeholders
- Common look and feel to other groups in the school
 - Aim is to minimize maintainence.
 - Pull in information from existing sources where possible
 - Highly templated approach that makes writing the pages very easy (credits D McKain)
- First iteration went live last week

New top page, quite simple for now, idea to have some a panel layout in future

Current banner photo provided at no cost to the group by Matt



Particle Physics Experiment home

Our Activities

ATLAS

LHCb

Dark Matter

Neutrinos

Future Colliders

Advanced Detector Development Centre

GridPP

Home > Physics & Astronomy > Research > Research directory > Particle Physics Experiment > Our Activities

Contact us

Our Activities

Information about our main research activities.

ATLAS

ATLAS is a high-energy physics experiment at the Large Hadron Collider (LHC) at CERN, near Geneva. ATLAS is searching for new physics in the head-on collisions of protons of extraordinarily high energy. Data from the ATLAS experiment will probe the basic forces that have shaped our Universe since the beginning of time and that will determine its fate.



LHCb

LHCb is a detector at the Large Hadron Collider (LHC) at CERN. It aims to study differences between matter and anti-matter (termed CP violation) in decays of B and D mesons. The level of CP violation provided by the Standard Model does not predict a large enough difference to explain why our universe is dominated by matter. LHCb aims to find new sources of CP violation that would be unambiguous signs of New Physics.



Dark Matter

The direct detection of Dark Matter is one of the key scientific goals of modern physics. The Edinburgh Group, together with its UK and international colleagues, are members of the presently world-leading Large Underground Xenon (LUX) project, and of the future LUX-ZEPLIN project.



Neutrinos

The observation of neutrino oscillations both solved the solar neutrino puzzle and opened up the possibility of CP violation in the

Jump off page for activities. Few photos missed (ATLAS/LC/GridPP)

Particle Physics Experiment home

Our Activities

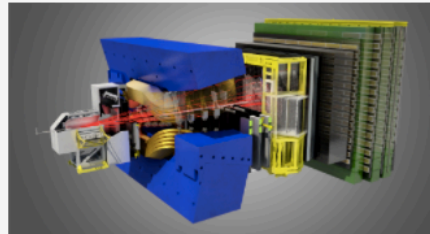
- ATLAS
- LHCb**
- Dark Matter
- Neutrinos
- Future Colliders
- Advanced Detector Development Centre
- GridPP

Home > Physics & Astronomy > Research > Research directory > Particle Physics Experiment > Our Activities > LHCb > Contact us

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The Edinburgh group takes an active role both in the analysis of data collected by the experiment and detector development and operation. From 2018, the LHCb experiment will undergo a substantial upgrade to allow operation with a higher rate of proton-proton collisions with improved performance. The Edinburgh group is involved both in the design of the upgraded Ring Imaging Cherenkov (RICH) detector and the studies of the performance of the upgraded LHCb detector as a whole. The groups activities are led by Prof Franz Muheim.



Physics analysis

We are leading a wide range of analyses related to the production and properties of b mesons.

- Measurement of CP violation in the golden decay mode $B_s \rightarrow J/\psi \phi$, which is one of the roadmap measurements for the LHCb experiment.
- Measurements of CP violation and T violation in $b \rightarrow s$ loop transitions ('charmless b-decays') such as $B_s \rightarrow \phi \phi$ and $B_s \rightarrow f(980)\phi$.
- CKM parameter measurements using semi-leptonic b-decays
- Studies of exotic hadrons such as the $X(3872)$ and the $Z(4430)$.

Detector development and operation





- LHCb Edinburgh took an active role in the development of the RICH detector before the LHC began the main data taking in 2010. This involved extensive testing of the HPD photon detectors in the RICH. During LHC data taking, the Edinburgh group was involved in the continuous operation of the RICH.
- For the LHCb upgrade we performed R+D for the new MaPMT photon detectors. Edinburgh now leads Quality Assurance testing of these devices in preparation for installation in 2018

The latest exciting results from the LHCb experiment can be found on the [LHCb public page](#).

PhD project opportunities in LHCb

- [Flavour Physics with LHCb](#)

People in LHCb

Name	Position	Contact details	Location	Photo
Academic staff				
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Research staff				
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Daniel Craik	PDRA	daniel.craik@ed.ac.uk 0131 650 7193	JCMB 5413	
Robert Currie	PDRA	rob.currie@ed.ac.uk 0131 651 7689	JCMB 5412	
Marcus Ebert	PDRA	marcus.ebert@ed.ac.uk 0131 651 7689	JCMB 5412	

Each activity pulls in information on who is doing what from school databases

Students only sign up for what you do when you arrive (many theory students were in 'PPE')

Academics: Ensure Pure details are correct

A few photographs missing

Example academic info

Matthew Needham | School of Physics and Astronomy

www.ph.ed.ac.uk/people/matthew-needham

SCHOOL OF PHYSICS AND ASTRONOMY

School of Physics & Astronomy home

- About us
- Study with us
- Research
- Current students
- People directory**
- News
- Events & seminars
- Industry
- Alumni

Home > Physics & Astronomy > People directory > Matthew Needham [Contact us](#)

Matthew Needham

Dr M D Needham

Position
Chancellor's Fellow

Category
Research staff

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Room 5411

Email: mneedham@staffmail.ed.ac.uk

Tel: +44 (0)131 651 7037

[Edinburgh Research Explorer profile](#)

[Expand all](#) | [Collapse all](#)

School research affiliations

Biography

Research interests

I am a Chancellors Fellow in the School of Physics and Astronomy at the University of Edinburgh. My main research interest is in indirect searches for physics beyond the Standard Model of Particle Physics in the decays of beauty mesons and neutrinos.

One of the puzzling features of the Universe is the absence of anti-matter. To explain this imbalance processes such as CP violation that distinguish matter and anti-matter are needed. Though CP violation is allowed in the Standard Model the level is much smaller than that needed to explain the matter-antimatter imbalance. Models of physics beyond the Standard Model (e.g. Supersymmetry or Little Higgs model) naturally lead to additional sources of CP violation. By comparing measurements of CP violation in the decays of beauty and charm quarks to the Standard Model predictions we aim to uncover the effect of new physics.

My work so far focussed on the analysis of data taken by the LHCb experiment. LHCb has collected the world's largest sample of heavy flavour decays and is able to perform a wide range of precision measurements. My main focus is search for the effect of new physics in the decays of Bs mesons. Heavy flavour decays provide a rich environment to probe Quantum Chromodynamics. I am involved in studies related to the production and spectroscopy of charmonium resonances and searches for exotic states such as tetraquarks.

Another exciting possibility to explain the absence of anti-matter is CP violation in the neutrino sector. The observation of neutrino oscillations makes this a viable possibility and two new long baseline experiments (HyperK and DUNE) are planned for the 2020s that will search for this. I am a member of the HyperK collaboration and work on studies of the simulation and reconstruction of a new planned intermediate detector (TITUS).

Teaching

PhD project opportunities

Publications

To do:

Fill in the blanks, correct typos

New banner ?

Seminars page needs porting to new school template for this

Suggested to have a news item and a job page (will need to be maintained)

Link to old pages for backwards compatibility

Link to intranet