



# UK news from CERN

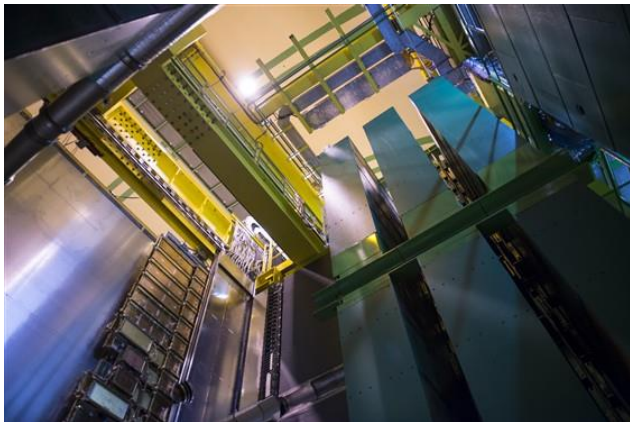
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## In this issue:

- **New Guy at LHCb** – a new spokesperson is elected and a physics coordinator steps down
- **Physics on the front line** – outreach that could really make a difference
- **Keeping ALICE safe** – an undergraduate placement with a difference
- **Summer student applications** – the deadline is approaching for this once-in-a-lifetime opportunity
- **Working with the media** – a free workshop for scientists
- **New Year Honour**
- **Dates for the diary**

## New Guy at LHCb

The LHCb collaboration has elected a new Spokesperson to head up the experiment; Guy Wilkinson (Oxford) will take up his role as the leader of the collaboration in July. As Guy prepares, Tim Gershon (Warwick) has just come to the end of his two-year term as LHCb's Physics Coordinator.



The LHCb experiment © CERN

At the start of any new job, there are challenges and goals, and for Tim the definite aim at the start of 2012 was to increase the number of publications. "Throughout 2011 the experiment had gathered data very successfully. We had issued several preliminary results but not many publications."

Tim's goal necessitated some changes in how

groups were organised within the 700-strong collaboration, as well as the publication process. For example, the collaboration used to issue preliminary results but now rarely does this, preferring to go straight to publication. The effects of Tim's changes have been profound; 2012 saw 57 papers published. "The LHCb collaboration is much smaller than ATLAS or CMS, but we are compared as equals. In 2013 we published over 80 papers - more than either ATLAS or CMS."

In fact, the most cited particle physics results paper in 2013 (Phys.Rev.Lett. 110 (2013) 021801, reporting the first evidence for the decay  $B_s^0 \rightarrow \mu^+ \mu^-$ ) came from LHCb.

"I think 80 is close to the maximum number of papers that practically we can issue in a year," says Tim, "but we've still got lots of data from 2012 to analyse."

The challenges for both Tim's successor and Guy are similar. "It's a juggling act", explains Guy, "we need to prepare for the next experimental run but we also have a rich and extensive programme of analysis for the data from the last run. And we also need to resource the planning and development activities for a major upgrade of the experiment, scheduled for the 2018-19 shutdown."

According to Tim, with higher energies and changes to the trigger, LHCb will be like a new



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experiment. Both he and Guy are excited about what the data from the next run might hold.

“One must be prepared for the unexpected”, says Guy, “For example the Standard Model predicts very little CP violation in hadrons containing charm quarks, but in the last run, an LHCb measurement gave the surprising indication of a larger than expected effect. Further analysis has made the signal less significant, but it hasn’t gone away. We need more data to either confirm or refute the result.”

For Tim, one of the scientific highlights of his time as physics coordinator was the data captured during the 2013 proton:lead run and in particular, measuring the nuclear attenuation factor for the  $J/\psi$  meson.

“This wasn’t one of the original scientific goals of LHCb. In fact, initially we weren’t even sure that we could operate the experiment during a proton:lead run. We worked very hard to ensure that we could operate safely and collected some excellent data. Through serendipity, it turns out that LHCb is close to being the ideal instrument to make these precise measurements.”

As LHCb gears up to the next experimental run, Tim has returned to Warwick, “being Physics Coordinator gives you a good overview of the experiment but you lose the detail. I’m looking forward to getting back into the data.”

Meanwhile, Guy is embracing the bigger picture, “there are daunting tasks ahead, but it is a great honour to be elected Spokesperson. I’m looking forward to the next three years.”

## Physics on the front line

*The original version of this interview features in the January 2014 issue of [Soldier](#) - the magazine of the British Army - and is reprinted with permission of the editor.*

A former CMS physicist turned British Army officer is putting college science syllabuses under the microscope in Kabul.

Who would have ever guessed that the legacy left behind in Afghanistan by the British Army may well include top-notch science education for the students of Kabul? If it does, it might be

down to Lieutenant James Jackson, of the Royal Scots Dragoon Guards, who is serving as a force protection troop leader, defending the Afghan media operations cell and any journalists that visit the capital.



Credit: Sergeant Dan Bardsley, Crown Copyright.

Lieutenant Jackson is a former particle physicist with CERN [Bristol, STFC Rutherford Appleton Laboratory and CMS], the research organisation that operates the world’s highest-energy particle collider – considered one of greatest engineering feats of all time.

He even has his name on the Nobel Prize-winning paper recording the discovery of the Higgs boson particle, the so-called ‘maker of mass’.

In 2012, the scientist swapped careers, inspired by his uncle, Brigadier Jolyon Jackson, who commanded 1st Battalion The Royal Green Jackets.

During his tour, Lieutenant Jackson has been finding out more about the sort of science courses that are available to Afghan students with a view to passing on some of his knowledge to colleges there, “Their rough syllabus looks decent for undergraduates,” he said. “I don’t know to what level the topics are taught, so I’ll be finding out more during my time here.”

Lieutenant Jackson joined the Army aged 27 and completed a year at the Royal Military Academy Sandhurst, where he was awarded the Queen’s Medal; given to the cadet who gets the highest mark in everything assessed.

Obviously, he was never going to struggle with the academic element, "I'm one of those people who finds maths and physics very easy," he said. "In my final year at Bristol University, I completed a project in particle physics, and from that I went on to study for a PhD in the subject."

Lieutenant Jackson appears to have taken the overall transition from the scientific world to the military comfortably in his stride:

"Both fields actually require a very similar mind set, so there is significant overlap," he said. "On the whole, those in the armed forces and research science are dynamic, adaptable, driven, not scared of uncertainty and keen to solve problems. This is one of the reasons why the move from science to soldiering was not as vast as you might expect."

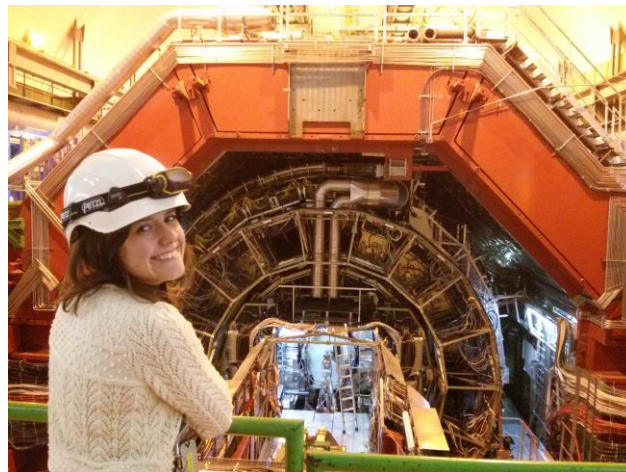
The officer's efforts to work with local universities in Kabul shows he will never be free of his passion for science, though, and he still closely follows the work at CERN: "I can only hope that the Higgs is just the tip of the iceberg and that when more data is analysed my friends and ex-colleagues can tease out more of the universe's secrets," he added. "I'll continue to watch with interest."

## Keeping ALICE safe

Undergraduate Olivia Bailey is spending her placement year at CERN. We asked her to tell us about her work:

"I am a technical student working in the safety team for the ALICE experiment. I have undertaken this position as a part of a year-long industrial placement for my degree programme in Chemical Engineering at the University of Bath.

I came to work at CERN because I thought it an amazing opportunity to be able to contribute in any way to this European hub of science. During my studies I have developed a specific interest in the human and environmental considerations of modern industrial processes.



Olivia and ALICE © Olivia Bailey

Whilst working with the ALICE safety team, my specific aim is to determine the fire load of the ALICE cavern. This project involves taking an inventory of all material that has been installed in the cavern to date and identifying the energy that each component would contribute in the case of a fire.

As well as the fire propagation properties of materials, I am looking into the density, toxicity and corrosivity of the gases produced during burning. The harmful gases produced in a fire situation (from the burning of plastics and other non-metallic materials) could pose a far greater risk to human life and damage to equipment than the flames themselves. It is the final aim of this initiative to have enough knowledge of the materials present underground to enable the simulation of a fire at various points in the cavern. This simulation could allow us to identify the areas that are most at risk of fire damage and, very importantly, allow us to see how a fire would impact on the escape routes from the cavern.

Since the project started in September I have been looking at the properties of the cabling in ALICE. Collating the vast amounts of information spread over the various systems of the past years has proved a challenge. Finding the relevant information has meant communication with a broad range of people from the detector groups to the CERN shop, to HSE and is still ongoing.

This experience so far working for ALICE has taught me much about the time scale that tasks take outside the classroom.

Working in such a multicultural, multilingual team is a very unique and educational experience. I look forward to the rest of my year with ALICE.”

*For undergraduates that would like to apply for the 2014 [Technical Student Programme](#), the deadline for applications is 6 May.*

This article was first published in [ALICE Matters](#).

## Summer student applications

The deadline for applications for the CERN Summer Student programme is 31 January.

If you're an undergraduate studying physics, computing or engineering, the programme offers a once-in-a-lifetime opportunity to:

- make valuable and long-lasting contacts with other students and scientists from all over Europe,
- attend lectures from leading experts in the fields of theoretical and experimental particle physics and computing,
- visit accelerators and experimental areas,
- work as part of a research team making a contribution to CERN's research programme.

Don't delay, [apply](#) today!

## Working with the media: a beginner's guide

Science communication is increasingly part of every project or experiment. But talking to journalists can be a bit daunting if you haven't done it before.

The Science Media Centre in London will be holding a half day [Introduction to the News Media](#) session on 21 February. This event is specifically geared towards scientists with little

or no media experience. And it's completely free of charge.

Attendees will be given a beginner's guide to the media and hear from media-experienced scientists, news journalists, science correspondents and press officers about the realities of the news media. Topics include:

- how and why scientists and journalists should engage with each other
- top tips for dealing with the media
- how journalists find stories
- the role of the press office
- the role of the news editor

The event is completely free of charge (did we mention that?) and you need to [reserve your place](#) as soon as possible.

## New Year Honour

Eleanor Baha from the British Consulate in Geneva has been awarded the MBE in the 2014 New Year Honours for services to UK Trade and Industry.

Eleanor has been supporting British commercial interests in Switzerland for 30 years, helping thousands of British companies win millions of pounds of business. She is a familiar face at CERN, arranging UK@CERN trade missions that help UK companies meet the right people and ultimately win contracts.

Congratulations!

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## Diary dates

CERN Council – 17-20 March  
[Collider exhibition](#) runs until 6 May 2014