

UNIVERSITY OF  
BIRMINGHAM

## School of Physics and Astronomy Community

Part of  
THE EPS COMMUNITY



### Winter 2015

#### Greetings

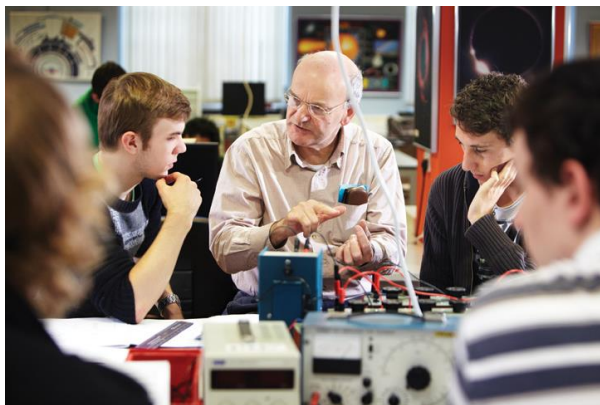
In May the Royal Society bestowed Fellowship on Professor Yvonne Elsworth for her, “pioneering work in establishing and maintaining an important scientific investigation into the internal structure of the Sun using helioseismic data from the autonomous Birmingham network of observatories complemented by extant data from modes of intermediate degree has permitted an unprecedented investigation into the inner core of the Sun where the nuclear reactions are taking place.”

This is well-deserved recognition both for Yvonne and the entire helioseismology group. They are now applying the technique that they pioneered to understanding the structure of stars around which Birmingham, as part of the Kepler mission, is now discovering new planets.



*Professor Yvonne Elsworth FRS, presenting one of our Physics Role Model seminars. These occur once a term, and are a personal reflection of people's career paths (this was the first academic career to be showcased); what they are doing; and advice for their younger selves. Please contact us if you would be interested in giving one – we aim to present the diversity of careers possible with a Physics degree.*

The School and Particle Physics group also celebrated the retirement of Dr John Wilson. John joined the University of Birmingham in 1973 as a Research Fellow, becoming a Lecturer in 1982. He contributed to the work of the group at CERN, particularly the UA1 and Opal experiments, the former being linked to the discovery of the  $W^{+/-}$  and  $Z^0$  particles – mediators of the weak interaction. John was famed for his contribution to instrumentation and most latterly his spark chamber, which fantastically illustrated the tracks of cosmic rays to a whole generation of School students.



*Dr John Wilson*

The new Quantum Technology hub linked to the investment of £80m investment from research councils and industry to support Professor Kai Bongs' work is close to opening on campus. In October 2015 HRH The Duke of York visited the School of Physics and Astronomy to see for himself the developments being made in the application of quantum science to the development of sensors with precision significantly beyond what is presently possible. The Duke of York toured the laboratories and spoke with staff and students together with colleagues from partner universities and industry.

In August the Defence Science and Technology Laboratory (Dstl) held a summer school for PhD students associated with the UK quantum hubs in Birmingham. This was a fantastic opportunity for students to learn about IP and pitching ideas linked to quantum technology to a group of “dragons”.



*Professor Kai Bongs (second left) explains the potential of quantum technology to HRH The Duke of York. (The venue is third year photonics laboratory.)*

The topic of energy continues to be an important issue for the nation. In July the School hosted a presentation (as part of the Birmingham Energy Institute's prestigious lecture series) by the Chief Scientific Advisor for the Department for Energy and Climate Change (DECC), Professor John Loughhead, who set out his vision for the future of UK energy policy and technology. A key component of the UK's energy strategy is linked to nuclear energy. The School has a long tradition in contributing to the nuclear sector in particular through the Physics and Technology of Nuclear Reactors (PTNR) Masters programme. This was recognised in the presentation given by Lord Hutton in his lecture "The Politics of Energy" when he visited the University in November.

Birmingham has developed strong links to a number of companies that are linked to developing new nuclear power plants in the UK. These include EDF and the Japanese company Hitachi-GE. The latter is in the process of bringing the Advanced Boiling Water Reactor to the UK and has offered Summer internships to Birmingham students. George Alford from the PTNR programme joined a number of other students working in Japan on some of the details of the reactor design.

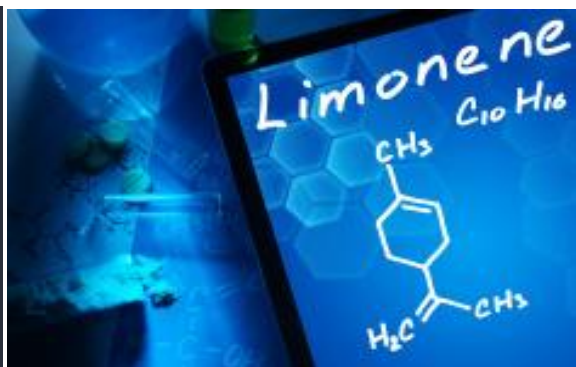
Our undergraduates are participating in a large variety of internships. Zoe Hodgins joined the School of Physics and Astronomy in 2013, and as a result of securing a highly competitive and generous BP Scholarship has been able to undertake technical internships in Shanghai (China) in her first year and in Medellin (Colombia) in the second. She observes, "These internships, along with my studies, have inspired me deeper into Physics and I feel I've been given an excellent foundation to stand on when I go into the world of work." Each year, a number of new Physics students manage to secure prestigious BP STEM Scholarships in recognition of their fantastic performance at A-level or equivalent.

The opportunity and confidence that the BP Scholarship funding provides is much appreciated by the close to 15 Physics students who have secured them to date. We are always interested to hear of other opportunities - please do contact us if you have any suggestions.

**Professor Martin Freer**

Head of School

Physics and Astronomy



## New breath test shows possible biomarker for early-stage liver disease

Researchers in the Molecular Physics Group have found limonene to be a possible biomarker for early-stage liver disease. Using a breath sampling protocol developed by Raquel Fernandez del Rio, limonene levels in the breath were analysed to determine a patient's ability to fully metabolise the compound, with very high levels being indicative of the disease.

[FIND OUT MORE >](#)



## Simpler, smaller, cheaper? Alternatives to Britain's new nuclear power plant

In a piece for *The Conversation*, Professor Martin Freer comments on plans for Britain's first new nuclear power station in 20 years. With criticisms of the cost and the use of unproven technology, would an advanced boiling water reactor (ABWR) be more beneficial to UK nuclear energy policy?

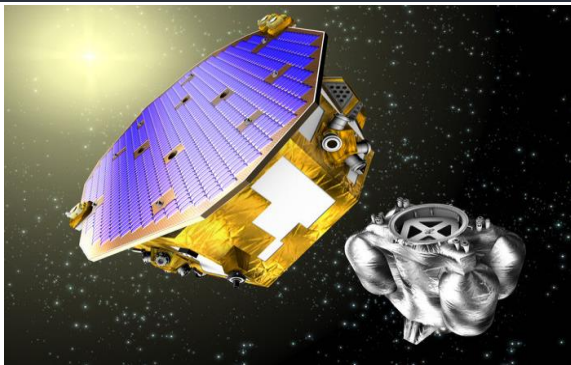
[FIND OUT MORE >](#)

## "The best place in Birmingham..."

In a new feature we'll be asking students and alumni in the College of Engineering and Physical Sciences about their favourite places in Birmingham. In this edition they tell us "The best place in Birmingham to socialise after lectures".



[FIND OUT MORE >](#)



## LISA Pathfinder test mission launch imminent

Physicists from Birmingham have been involved in the design and build of the LISA Pathfinder's (LPF) Phasemeter. The instrument will measure the separation between two test masses linked by laser beams, helping scientists to search for any spurious influences on the measurements between the masses that might hinder the future detection of gravitational waves by eLISA.

[FIND OUT MORE >](#)



## Societies News

It's been a busy start to the new academic year for our societies! [AstroSoc](#), [NucSoc](#), [PPS](#) and [WISE](#) tell us about their events over the past few weeks, welcoming new members, to their plans for the coming months.

[FIND OUT MORE >](#)



## News Round-Up...

There have been a number of appointments in the School over the past few months. Read a summary of our new staff [here](#).

Astronomy in the City will be continuing their programme of free public events over the next few months. For more information and to book a place, please [visit the website](#).

---

The University recently unveiled its [five-year plan](#) to deliver real impact, tackle major challenges and transform lives through its research, education, investment and influence.

Birmingham has been named [University of the Year for Graduate Employment](#) in The Times and The Sunday Times Good University Guide 2015-16.

A Qur'an manuscript held by the Cadbury Research Library and thought to be among the oldest in the world, was [recently exhibited at the University](#).



### Alumni News

In this edition we hear from Matthew Harrison (BSc Physics with International Study, 2015) about how he's enjoying life as a graduate in Toulouse, France.

[FIND OUT MORE >](#)



### Get Involved!

There are many ways you can get involved with us:

- Send us your news for a chance to feature in our next edition
- Become a mentor and help support our students
- Offer a work experience placement
- [Hang a personalised bauble on our Christmas tree!](#)

And don't forget to let us know where

your favourite place to socialise after lectures was!

[EMAIL US >](#)

## Events

### [EPS Inaugural Lecture Series](#)

For information on upcoming lectures in the EPS Inaugural Lecture Series please [visit our website](#).

#### **Saturday 5 December 2015**

##### [Christmas at Winterbourne](#)

Winterbourne's ever popular Christmas event returns on 5<sup>th</sup> December, bringing a traditional Christmas to Birmingham. With the house beautifully dressed in traditional decorations, carol singers providing an unforgettable atmosphere, magic lantern shows and an expanded craft stalls areas, there's plenty to keep you entertained.

**Time:** 11am-7pm

**Venue:** Winterbourne House and Garden, Edgbaston Campus

#### **Monday 7 December 2015**

##### [Festive Drinks at the University Carol Service](#)

Join fellow University of Birmingham alumni, staff and students for the perfect start to the Christmas season. Come back to campus for an uplifting and joyful carol service, organised by the University Chaplaincy and Department of Music and featuring carols, readings and festive poems, all in the beautiful surroundings of the Great Hall. Alumni are then invited to join us in the Rotunda (above the Aston Webb foyer) for mulled wine, fruit juice and mince pies.

**Time:** 6.15pm-9pm

**Venue:** Great Hall, Aston Webb Building, Edgbaston Campus

#### **Tuesday 8 December 2015**

##### **EPS Christmas Lecture**

##### [Professor Mark Miodownik: Stuff Matters](#)

Whatever people think about the rapid pace of change of technology, our most fundamental categorization of stuff on the planet has not altered: there are living things that we call life, and there is non-living stuff that we call rocks, tools, buildings and so on. As a result of our greater understanding of matter, this distinction is now becoming blurred and is likely to usher in a new materials age. Bionic people with synthetic organs, bones and even brains will be the norm. Just as we are becoming more synthetic, so our man-made environment is changing to become more lifelike: living buildings, and objects that heal-themselves are on the horizon. This lecture reviews the changes to the material world that are coming our way.

**Time:** 6.30pm-8.30pm

**Venue:** Leonard Deacon Lecture Theatre, Medical School, Edgbaston Campus

**Tuesday 19 January 2016**

**Distinguished Leaders Series: Paul Szumilewicz and Lucy Williams (HSBC)**

In the latest lecture in the Distinguished Leaders Series, the Birmingham Business School (BBS) Alumni Relations team are delighted to welcome Paul Szumilewicz and Lucy Williams to discuss 'Leading Change: Challenges and opportunities of moving HSBC's Ring-fenced bank from London to Birmingham'.

**Time:** 6pm-8pm

**Venue:** Room G12, Main Lecture Theatre, Birmingham Business School, Edgbaston Campus

**Wednesday 9 March 2016**

**EPS Distinguished Lecture: Professor Dave Charlton FRS**

Professor Dave Charlton FRS, spokesperson of the ATLAS Collaboration at the Large Hadron Collider at CERN will be delivering the next EPS Distinguished Lecture. Please see the [website](#) for more information.

**Time:** 6pm-7.30pm

**Venue:** Edgbaston Campus

**Wednesday 8 June 2016**

**EPS Societies' Awards**

Come and celebrate with our student societies as we recognise their fabulous achievements in 2016/17.

**Time:** 7pm-11pm

**Venue:** The Great Hall, Edgbaston Campus

**Saturday 18 June 2016**

**EPS Alumni Reunion**

As a graduate of one of the nine schools in the College of Engineering & Physical Sciences (EPS), you are invited back to campus for a Summer Reunion to get together with your fellow alumni to celebrate your experiences, accomplishments and friendships at the University of Birmingham.

**Time:** 9.30am-6pm

**Venue:** Edgbaston Campus

**Monday 12 September 2016**

**Alumni Golf Day 2016**

Following on from the success of the inaugural University of Birmingham Alumni Golf Day held in 2015 at Edgbaston Golf Club, we are delighted to announce that another event is planned for 2016. Please see the [website](#) for further information.

**Time:** 10am-6pm

**Venue:** Edgbaston Golf Club



The University of Birmingham has alumni groups all over the world that organise local events. To join a group and see details of upcoming events please visit the [webpage](#) and select your location.



You have received this email from the University of Birmingham because we believe that it is relevant and of interest to you. If you would like to opt out of receiving further University news via email, please visit [your.bham\\_email](#) or telephone +44 (0)121 414 2773. In order to further tailor the communication we send, all emails are tracked and processed; further information regarding our use of data, is available by looking at our [data protection statement](#).