

UNIVERSITY OF
BIRMINGHAM

School of Physics and Astronomy Community

Part of
THE EPS COMMUNITY



Spring 2014

Greetings,

I write this on the last day of the undergraduate term having given the final lecture of my new course. For the undergraduate students it has been a frenetic few weeks with "group study" and project talks and reports due in and vivas beginning.

It has also been busy for academics with, not only the supervision of the aforementioned work plus lecture courses and labs, but this year's admissions round has been intense. We've had a strong cohort of applicants in part due to the "University of the Year" accolade, but also reflecting a fantastic year for the School in the National Student Survey last summer. It turns out that Birmingham has the most satisfied physics students in the country! Its a reflection of the dedication of the whole staff team.

In parallel, our research is providing an equally positive narrative. The recent observation of a gravitational wave imprint on the cosmic microwave background is providing a unique look at the earliest dawn of time while also giving a tantalising glimpse into the future of gravitational wave astronomy. Alberto Vecchio and his colleagues are [working for the first direct detection of gravitational waves](#) which will open that new window on the universe. Dave Charlton's continued leadership of the ATLAS project at CERN's Large Hadron Collider, with an extensive Birmingham team, is planning for the next upgrade to the experiment in the [quest for new exotic particles](#); and Kai Bongs and his team are harnessing the [properties of the microscopic quantum world](#) to build quantum devices of unparalleled sensitivity.

I'd like to take this opportunity to remind you of your invitation to attend the [School Reunion](#) on Saturday 14th June. This year it is being organised under the banner of the College of Engineering and Physical Sciences (of which the School of Physics and Astronomy is one of the nine members). Just like previous University Annual Alumni Reunion events, we are inviting all former students of the School to return to campus to reminisce with us. It is set to be a very good day and I look forward to seeing many of you there.

Whether you can attend or not, we very much enjoy hearing from you and are always keen to tap into the expertise of our alumni. Our students particularly value the opportunity of developing additional skills - for example via internships - and any help, advice or mentoring you could give would be most welcome.

With best wishes

Professor Andy Schofield
Head of School
Physics & Astronomy

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News from the School of Physics & Astronomy

Hurry! Only 24 hours to secure your 'early bird' place at the EPS Reunion 2014!



Do you have fond memories of your time at the University of Birmingham? Do you still keep in touch with those classmates who you pulled all-night study sessions with, to get that last assignment finished? As a graduate of the School of Physics & Astronomy, we'd love for you to join us on campus on Saturday 14 June 2014 for a Reunion. [Read more](#)

10 ways the University of Birmingham has changed the world



Can you help us to celebrate the impact that staff, students, and alumni have had on society?

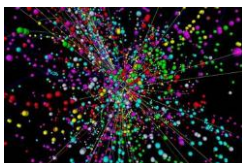
With eight Nobel Prize winners amongst former staff and students, and world-leading researchers on everything from the Big Bang to Shakespeare, Birmingham research continues to transform lives. The University needs your nominations for a new 'top ten' list of the alumni, staff, and students who have had profound impact through their research. Visit www.birmingham.ac.uk/10ways to cast your vote by **Friday 4 April**. Winners will be announced in May.

Echoes of the Big Bang



Cosmologists, who believe the universe emerged from an initial "explosion" 14 billion years ago, announced in March a new discovery that may go a long way to confirming their theory. University of Birmingham astrophysics are engaged in world-leading research into gravitational wave theory. Professor Alberto Vecchio, Head of the Astrophysics and Space Research Group, explains the science behind the Big Bang announcement. [Read more.](#)

Exotic particles, tiny extra dimensions may await discovery



Exotic particles never before detected and possibly teensy extra dimensions may be awaiting discovery. Such particles are thought to fill gaps in and extend the reigning theory of particle physics, the Standard Model, says David Charlton, Birmingham Professor and spokesperson of the ATLAS experiment at the world's biggest particle accelerator, the Large Hadron Collider. [Read more.](#)

Poynting Physical Society update



By Ceri Bradshaw, Vice-President, and Ryan Pepper, Treasurer

It's been a busy year for the Poynting Physical Society. [Read what Vice-President Ceri Bradshaw and Treasurer Ryan Pepper and have up to.](#)

Professor Sir Martin Sweeting delivers the inaugural EPS Distinguished Lecture



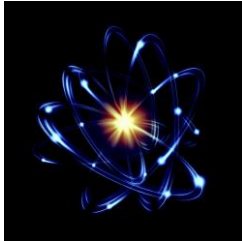
On Wednesday 5th March Professor Sir Martin Sweeting, Director of the Surrey Space Centre, delivered the first EPS Distinguished Lecture. Students Ceri Bradshaw, Rob Brennan-Craddock and Graham Kirkby summarise the event. [Read more.](#)

Gravitational waves and the unheard broadcast of the violent universe



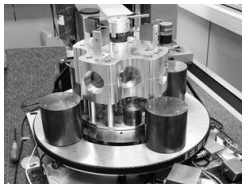
There are very few people who can expect to 'see' what happened a fraction of a second after the Big Bang – but Professor Alberto Vecchio is one of them. He is part of a team of international experts revolutionising our understanding of the universe; by tuning into its 'gravity channel'. This has been broadcasting since the dawn of time through the incredibly weak form of radiation known as gravitational waves, but until now no one has been able to hear it directly. [Read more.](#)

Quantum technology: iSensing the underworld



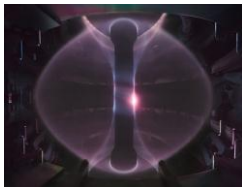
While understanding the rules of the abstract part of physics 'quantum mechanics' occupied the 20th century, harnessing its power for applications will be a dominant theme of the 21st century. Making the earth beneath our feet transparent is the latest example of utilising the strange properties of the microscopic quantum world to provide such a 'Quantum Technology'. [Read more](#)

Newton's constant of gravitation - a physical constant too difficult to measure?



There is much controversy about the actual value of Newton's constant of gravitation G , this oldest fundamental constant of nature, with experiments of claimed accuracies of tens of parts per million disagreeing. The new result, which itself came from two largely independent measurements, agreed with the value that the collaboration had published in 2001, despite a rebuild and significant improvements to the apparatus. It would seem that the difficulty of determining or, perhaps, even defining G continues! [Read more](#)

For decades a distant dream, the countdown to nuclear fusion may have finally begun



The latest results from the National Ignition Facility in the US represent the passing of a nuclear fusion power milestone and come after a year of significant progress at projects in France and the UK. Dr Paul Norman, Senior Lecturer in Nuclear Physics, comments on these results. [Read more](#)

National Women in Engineering Day



Monday 23 June marks the first National Women in Engineering Day launched by the Women's Engineering Society. It is intended as a day dedicated to raising the profile and celebrating the achievements of women in engineering. We are looking for women with a story to tell. Do you work in science or engineering and would like to get involved? The programme is being developed as we speak so if you would like more information or want to take part please [email us](#) or keep an eye on [our website](#).

New staff in 2013/14

There have been a number of appointments in the School this term. [Read a summary of our new staff online here.](#)

Your School needs you...

Would you be able to share some of your time, expertise or connections to help our students to succeed?

We're currently looking for help and support from alumni with the following:

- EPS Open Days, 26-27 June. Could you donate a couple of hours of your time to pop back to your old school and speak to our prospective students about your time at Birmingham? For more information and to get involved [email us](#)
- All women in science and engineering. As part of National Women in Engineering Day, 23 June, the EPS Community is hosting a number of activities, conversations and events designed to celebrate women in engineering and scientific careers. If you work in science or engineering and would like to sit on our panel, get involved in the conversation on

twitter, or come along to our evening event, please get in touch by [emailing us](#)

There are many ways in which you can give a little back, from providing a career profile, to mentoring a student. **Details can be found [online](#) and [email us](#) if you would like to get involved.**

Events taking place shortly...

School events

[Jets and Higgs by Dr Jeppe Andersen, Durham University](#)

30/04/2014, 1:30-2:30pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

[Weak gravitational lensing by Dr Catherine Heymans, University of Edinburgh](#)

07/05/2014, 4-5pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

[LUX by Dr Henrique Araujo, Imperial College](#)

14/05/2014, 1:30-2:30pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

[Realism and the epistemic view of quantum states by Prof Terence Rudolf, Imperial College](#)

14/05/2014, 4-5pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

[Classical loop models and quantum phase transitions by Prof. John Chalker, University of Oxford](#)

15/05/2014, 1:45-3pm

Theory Library, Room 415b, Physics East Building (R10), University of Birmingham

[The Search for Exotics at CMS by Dr James Brooke University of Bristol](#)

21/05/2014, 1:30-2:30pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

[Anti-Hydrogen by Prof Mike Charlton, Swansea University](#)

21/05/2014, 4-5pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

On the Formation of Saturn's Rings by Dr Henrik Latter, University of Cambridge

22/05/2014, 1:45-3pm

Theory Library, Room 415b, Physics East Building (R10), University of Birmingham

Progress toward NNLO Generators for LHC by Dr Emanuele Re University of Oxford

28/05/2014, 1:30-2:30pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

The High Luminosity Programme for LHC by Prof Nikos Konstantinidis, University College, London

04/06/2014, 1:30-2:30pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

BSM Searches at ATLAS by Dr Nikolaos Rompotis, Washington University

11/06/2014, 1:30-2:30pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

Time and Space, Light and Matter by Dr. Paul Kinsler, Imperial College

12/06/2014, 1:45-3:30pm

Theory Library, Room 415b, Physics East Building (R10), University of Birmingham

The Search with ATLAS for Higgs Decays to Beauty by Paul Thompson, University of Birmingham

18/06/2014, 1:30-2:30pm

S06 Small Lecture Theatre, Poytning Building (R13), University of Birmingham

College events

EPS Inaugural Lecture Series

[Professor James Tucker – “Going beyond the Molecule: The Chemistry of Connections”](#)

10/04/2014, 5:15-7:30pm

Lecture Theatre 203, Haworth Building (Y2), University of Birmingham

The lecture will describe and focus on an area of science called supramolecular chemistry, which is often described as "chemistry beyond the molecule". Supramolecular chemistry goes beyond traditional molecular chemistry, which largely focuses on how individual molecules are made, to focus on what a molecule can do once it is made. In particular it concerns how molecules interact with one another and how an understanding of these so-called intermolecular interactions can lead to ordered assemblies, controllable functionality and the mimicry of biological systems.

For more information on other lectures in the EPS Inaugural Lecture Series please visit www.birmingham.ac.uk/eps/inaugural

British Science Festival Event

Details to be confirmed

Keep a look-out here as for more information on how we'll be celebrating the British Science Festival at the university. More information to follow soon!

[National Women in Engineering Day](#)

23/06/2014

Details to be confirmed

On 23rd June the EPS Community will be celebrating the achievements of women in the field of engineering as part of the first National Women in Engineering Day (NWED). Keep a look-out here as for more information on our plans for the day!

[EPS reunion](#)

14/06/2014

College of Engineering & Physical Sciences, Edgbaston Campus

As a graduate of one of the nine schools in the [College of Engineering & Physical Sciences](#) (EPS), you are invited back to campus on 14 June 2014 for a Summer Reunion to get together with your fellow alumni to celebrate your experiences, accomplishments and friendships at the University of Birmingham.

To book your place, please follow the online registration link below or download the appropriate booking form and return by post, fax or email. <http://bhamalumni.org/eventregistration>

University events

[Hong Kong Alumni Gathering](#)

02/04/2014, 7-9pm

Shore 3rd Floor, The L Place, 137-141 Queens's Road, Central Hong Kong

[Melbourne Alumni Gathering](#)

10/04/2014, 6:30-9pm

Seasons Botanic Gardens Hotel, Orient East Bar and Restaurant, 348 St Kilda Road, Melbourne VIC 3004

[Fab 'n' Refresh](#)

26/04/2014, 10pm

Joe's Bar, Guild of Students, University of Birmingham

[Sydney Alumni Gathering](#)

29/04/2014, 7-9pm

The Zeta Br, Level 4, 488 George Street, Hilton, Sydney, Australia

[Brisbane Alumni Gathering](#)

Pig 'N' Whistle Riverside, 123 Eagle Street, Brisbane, Australia

[Alumni Sports Day](#)

14/06/2014, 9am-5pm

University of Birmingham

Do we have the right details for you?

please visit your.bham or email alumnioffice@contacts.bham.ac.uk.

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 information from your College, School or Department by email, please opt-out by visiting your.bham, emailing alumnioffice@contacts.bham.ac.uk, or telephoning +44 (0)121 414 2773 / 2744 / 4724. 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](#)