

UNIVERSITY OF
BIRMINGHAM

School of Mathematics Community

Part of
THE EPS COMMUNITY



Summer 2014

Dear Kathryn

As I walked across campus in July I watched crowds of our most recent graduates walking out of the Aston Webb Building proudly holding their certificates, and posing for those memorable photos with family and friends. It is a wonderful time of year, a time to celebrate all the hard work our students have put in over the last three, or four (maybe even more) years of their respective degrees.

As you will see from this newsletter, our academics have also been busy – not only with marking hundreds of exam papers, but with their own research. Daniela Kuhn and Deryk Osthus have been jointly awarded a London Mathematical Society Whitehead prize for their solution of a number of challenging problems in Combinatorics; [Dr Maria Carmen Reguera has being awarded a funding boost for her research into harmonic analysis](#); and [Dr David Craven provided a perspective on the maths behind voting in European elections](#).

It has been a busy time in the School and across the College with a number of 'firsts', including the first annual [EPS Reunion](#) which took place on 14 June with over 170 alumni in attendance. We also hosted a panel event, '[Engineering a sustainable future](#)', in addition to a number of other activities in recognition of the first ever National Women in Engineering Day, celebrating women's contribution to engineering and science professions.

Lastly, but certainly not least, our first [EPS Societies' Awards](#) was held on 6 June, celebrating the fantastic achievements of our student body in delivering an exciting programme of events, projects and challenges over the course of the year as part of their involvement in our School societies. With a live student band providing entertainment and 10 highly sought-after award categories, it really was a night to remember. [MathSoc even scooped the top two Awards of the night](#): Head of College Idea of the Year and Most Improved Society for their transformational year and the introduction of a 'family scheme' for new undergraduate students.

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As the final curtain falls on the 2013-14 academic year, I'd like to wish you all a pleasant and restful summer and I look forward to updating you with the latest news from the School and our new students in the Autumn Term.

With best wishes,

Dr Paul Flavell
Head of School
Mathematics

News from the School of Mathematics

Congratulations Class of 2014!



On behalf of all academic and support staff in the School of Mathematics, we'd like to say a huge congratulations to all our new graduates who received their degree certifications earlier in July after lots of hard work and dedication! [Read more.](#)

'A great day was had by all'



On Saturday 14 June 2014 we welcomed alumni from across the College of Engineering and Physical Sciences back to the University for a special day of celebrations and activities with fellow classmates and staff. Over 170 alumni and guests from as far back as 1946 up to our 2013 graduates attended this annual College Reunion, which was open to all graduating years for the very first time. Read about the day and access photographs [here.](#)

Industry-led campaign launched by the Chancellor to inspire more young people to study maths and physics



A new campaign to boost participation in science and maths at school and beyond has been launched by George Osborne, in partnership with leading entrepreneurs and organisations including the University of Birmingham. [Read more.](#)

University of Birmingham academics awarded National Teaching Fellowship



Michael Grove, Director of the University of Birmingham's STEM (science, technology, engineering and maths) Education Centre, has been awarded a National Teaching Fellowship by the Higher Education Academy for his work on the Mathematics Support Centre. [Read more.](#)

Tactical manoeuvres: making votes count in elections



Dr David Craven discusses the maths behind voting in elections, voting parties in – or out as the case may be. [Read more.](#)

EPS Societies' Awards



On Friday 6 June 2014 the College of Engineering and Physical Sciences celebrated the achievements of our student societies with the first ever EPS Societies' Awards. We have a strong tradition of outstanding educational success; from public astronomy events with AstroSoc to designing Formula Student cars with UBRacing, the societies do astonishing work not just in academia but also to promote careers opportunities, industrial visits and, of course, social events. Organising committee member and Mechanical Engineering student Daisy Partlow tells us about the night [here](#). Winners, nominations and photographs are also available on our [website](#).

MathSoc Update



It's been an incredibly busy and successful year for MathSoc. Outgoing President Phoebe Facer and incoming President Eve Dam tell us more. [Read more.](#)

University of Birmingham launches the Rocketry Society



The University of Birmingham Rocketry Society (UBRS) is the newest and most explosive EPS group yet! Dan Lockett, Maths student and Deputy Director-General, [tells us more.](#)

National Women in Engineering Day celebrated at the University



In celebration of the UK's first ever National Women in Engineering Day on 23 June 2014, the College of Engineering and Physical Sciences organised a programme of events and activities, including a panel event discussing 'Engineering a sustainable future' with leading female engineers and academics. View interviews and videos from the day [here](#).

Funding boost for research into harmonic analysis



Dr Maria Carmen Reguera, Birmingham Fellow in the School of Mathematics, is among 13 top scientists to receive a funding boost for her research from the VINNOVA programme, Mobility for Growth. [Read more.](#)

Smart DJs use maths to mix the perfect beat



People are very good at moving in time to a beat. When you listen to your favourite song, you will probably find yourself nodding your head or tapping your foot along almost instinctively. Mark Elliot investigates how accurate a DJ needs to be to make a seamless transition between songs, and how mathematics aids this,

in an article written for The Conversation. [Read more.](#)

New staff in 2014

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:

- Work experience placements are invaluable for our students, allowing them to learn about the world of work first-hand and apply their knowledge in a real-life setting. If you work in industry and think you could offer a work experience placement to our undergraduate or postgraduate students, please [email us](#)

There are many ways in which you can give a little back, from providing a career profile, to mentoring a student. Please [email us](#) if you would like to get involved and we'll be happy to talk to you.

Events taking place shortly...

College and School events

EPS Inaugural Lecture Series

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

Wednesday 24 September 2014

The London Mathematical Society Popular Lectures

"What's in a number?" Professor Kevin Buzzard (Imperial College London) and "Epidemics and Viruses: the mathematics of disease" Dr. Julia Gog (University of Cambridge). We are very pleased to be hosting the London Mathematical Society's Popular Lectures 2014. Please note this two part lecture is at a different time and room to our usual lectures and requires registration via the [London Mathematical Society](#). Please register by Thursday 18th September.

Venue: Haworth Lecture Theatre, Edgbaston Campus

<http://www.lms.ac.uk/events/popular-lectures>

Monday 22 – Saturday 27 September 2014

Trusting Atoms: The Last Trials of Ludwig Boltzmann

Trusting Atoms: The Last Trials of Ludwig Boltzmann brings to life the passion, drama and suffering of one long-forgotten scientist of the 19th Century. Join Ludwig Boltzmann in his battle to save the dying theory of atoms, his equation and so his career in a hostile scientific environment.

Venue: Cadbury Room, St Francis Hall, Edgbaston Campus

<http://www.birmingham.ac.uk/university/colleges/eps/events/Trusting-Atoms.aspx>

Wednesday 22 October

Popular Maths Lecture - Astrostatistics: Counting extra-solar Earths, hearing the mergers of galaxies, and seeing black holes

Astronomy is entering a new era. Unlike the photographic plates of previous generations, modern astronomical data sets can comprise terabytes of databases describing the state of the telescope, properties of objects identified in the images, links to previous observations of the same field, and---of course---the actual images taken by the telescope. The vast amount of data and the special challenges of astronomical observations have given rise to a new field, astrostatistics, which is devoted to analysing these data sets and drawing conclusions about the astronomical objects in them. Through examples, including counting the number of Earth-like exoplanets in the universe, listening to the hum from merging super-massive black holes at the centres of galaxies over cosmic time, and observing gravitational waves from coalescing solar-mass black holes, I will illustrate some of the new techniques from this marriage of modern statistics---particularly computational statistics---with astronomy.

Venue: Edgbaston Campus

<http://www.birmingham.ac.uk/schools/mathematics/news-and-events/birmingham-popular-maths-lecture.aspx>

Thursday 6 November 2014

EPS Distinguished Lecture: Professor Paul Cannon

Minor explosive eruptions of energy from the Sun that cause small solar storms on Earth are relatively common events. In contrast, extremely large events (superstorms) only occur very occasionally – perhaps once every century or two. Since the start of the space age, there has been no true solar-superstorm, but there have been a number of large storms and some of these have caused major technological damage, for example the partial collapse of the Canadian electricity grid in 1989

Venue: EPS College, Edgbaston Campus

www.birmingham.ac.uk/eps/distinguished-Nov14

Wednesday 19 November

Popular Maths Lecture – How to make the biggest Airbus fly

The aircraft industry is very conservative, for obvious reasons. Usually when a manufacturer decides to design a bigger aircraft, the engineers just start with the existing design of a smaller aircraft of the same type and scale it up. However when Airbus decided to build the biggest ever passenger aircraft, the A380, this approach did not work. Using a scaled up existing design resulted in wings that were too long to fit in commercial airports. Even when redesigned and shortened, the wings were two times heavier than that which would allow the aircraft to fly. So the company decided for the first time to use "unconventional" tools of structural optimization to design their aircraft.

Venue: Edgbaston Campus

<http://www.birmingham.ac.uk/schools/mathematics/news-and-events/birmingham-popular-maths-lecture.aspx>

Wednesday 3 December

Popular Maths Lecture – The Mathematics of Voting

We tend to feel fairly smug, living in democracies, about our system of government, but are elections fair? Do they really reflect the views of the electorate? Certainly many people are unhappy with the 'First-Past-the-Post' electoral system used in the UK, espousing instead some form (or other) of proportional representation. Would such a system be better? How can we make a judgment? In this talk, we shall compare some voting methods and then discuss Arrow's Impossibility Theorem. Hopefully the talk will engender surprise, contention and disbelief.

Venue: Edgbaston Campus

<http://www.birmingham.ac.uk/schools/mathematics/news-and-events/birmingham-popular-maths-lecture.aspx>

Monday 8 – Wednesday 10 December 2014

International Conference on High Speed Rail - 8th-10th December 2014

2014 marks the 50th anniversary of the first Shinkansen high speed line in Japan. The University of Birmingham is marking this historic occasion by holding an international conference on High Speed Rail

Venue: Edgbaston Campus

highspeedrail64@contacts.bham.ac.uk

Wednesday 10 December 2014

EPS Christmas Lecture – Professor Jim Al-Khalili OBE

Please join us to hear from Professor Jim Al-Khalili, Presenter of The Life Scientific on Radio 4, British scientist, author and broadcaster as he delivers the inaugural EPS Christmas Lecture

Venue: The Great Hall, Edgbaston Campus

www.birmingham.ac.uk/eps/christmaslecture

March 2015

EPS Distinguished Lecture: Prof Dr PE Seeram Ramakrishna

Prof Dr PE Seeram Ramakrishna is the Director of the Center for Nanofibers & Nanotechnology at the National University of Singapore

Venue: EPS College, Edgbaston Campus

www.birmingham.ac.uk/eps/distinguished-Mar15

Tuesday 9 June 2015

EPS Societies' Awards Night

Come and celebrate with our student societies as we recognise their fabulous achievements in 2014/15

Venue: The Great Hall, Edgbaston Campus

www.birmingham.ac.uk/eps/societies-awards-2015

Saturday 20 June 2015

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

Venue: Edgbaston Campus

www.birmingham.ac.uk/epsreunion2015

University events

Saturday 6 – Thursday 11 September 2014

British Science Festival 2014

The British Science Festival celebrates all things scientific and will be hosted by the University of Birmingham in September 2014.

Organised by the British Science Association, the event offers something for everyone

Venue: Birmingham City Centre and Edgbaston Campus

<http://www.birmingham.ac.uk/university/british-science-festival/index.aspx>

Thursday 11 September 2014

[Alumni Reception at the British Science Festival](#)

Join fellow alumni for drinks and nibbles on the final day of the British Science Festival.

Venue: Marquee, Chancellors Court, University of Birmingham

<http://www.birmingham.ac.uk/alumni/events/items/BSF-Alumni.aspx>

Saturday 13 September 2014

[GGAA 2014 Forum & AGM](#)

Join members of the Guild of Graduates and Alumni Association (GGAA) for their 2014 Forum and AGM. This year's speaker is the Rt Hon Ann Widdecombe.

Venue: Edgbaston Campus

<http://www.birmingham.ac.uk/alumni/events/items/GGAA-2014-Forum--AGM.aspx>

Saturday 13 September 2014

[Golden and 50th Anniversary Reunion](#)

Alumni who graduated in 1964 or before are welcome to join for a special reunion lunch

Venue: Edgbaston Campus

<http://www.birmingham.ac.uk/alumni/events/items/Golden50th-Anniversary-Reunion---13-September-2014-.aspx>

Do we have the right details for you?

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