

# Welcome to the Science Gala!

University of Warwick- Science Concourse

Wednesday 31st January 2018

5.00-8.30pm

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## Talks

Seats allocated on a first come first served basis.

### For Key Stage 2 (Ages 8-12 years) 5:30-6:00pm L3

Ally Caldecote '*Funky Physics*'

### For Key Stages 3 and above (12yo and above) 6:00-6:50pm in L5

Natacha Borrel and Lucy Hong '*XMaS Scientist Experience*'

Alice Stamp and Nikita Channa '*Life as a Physics Student*'

Nicholas Jackson '*Error correcting codes*'

### For Key Stages 3 and above (12yo and above) 7:00-8:00 in L3

Pam Thomas

Tim Martin and Kate Shaw '*Virtual visit to ATLAS at CERN*'

### For Key Stages 3 and above (12yo and above) 7:30-8:30 in PLT

Don Pollacco '*Exoplanets and the search for life in the universe*'

Linkup with La Palma telescope

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## Tours

All our tours have limited availability and are on a first come first served basis. Please queue up in the designated area.

Physics Teaching Laboratories – duration approximately 15 minutes – suitable from KS3

Chemistry Department – duration approximately 20 minutes – suitable from KS3

Chemistry Laser Laboratories - duration approximately 15 minutes - suitable from KS3

## Workshops/Shows

Spaces allocated on a first come first served basis.

### For Key stages 1 and above – 5:00-8:30, 15 minutes/show, room PS1.28

- **Planetarium** *'Join us in our journey to the centre of our galaxy, a show to discover how astronomers investigate what lies at the heart of the Milky Way using powerful telescopes'*

### For Key stages 1 and 2 – 5:00-8:30, 20 minutes/workshop, room B201 (Workshops will run every half-hour)

- **Moving Science workshop:** *Flux's Moving Science workshops are an exciting mix of movement and science!*

### For Key Stage 2 and above – 5:00-8:30, 20 minutes/show, room B203 (Shows will run every half-hour)

- **National Physical Laboratory, Andrew Hanson:** *Be ready for cloudy spills and thrills in the Liquid Nitrogen Science Show!*

## Exhibition Stands

**XMaS**



The student winners of XMaS Scientist Experience 2017 will share their experiences of winning the competition to visit XMaS at the European Synchrotron Radiation Facility (ESRF). They will discuss what they have learnt and give details of this year's competition, which is now open.

**Anti  
Microbial  
Resistance  
Outreach  
Project**



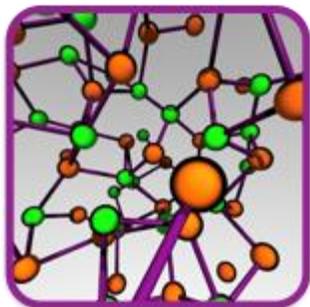
Sneeze Zone: a sneezing range will set up on the day where kids have the opportunity to use a sneeze gun. This highlighted the importance of covering your mouth and nose when sneezing to prevent the spread of illness

**Astronomy  
and  
Astrophysics**



At the Astronomy stand, get a taste of the research completed by the Astronomy group in Warwick, Europe's most successful user of the Hubble Space Telescope. Current researchers will be on hand to answer your questions on topics ranging from the destruction of distant planets by white dwarfs in our own Galaxy to the brightest and most powerful explosions in the Universe!

**Chemistry  
Department**



*A Song of Atoms and Ice: Molecular Simulations tell their Stories*

From the freezing of water into ice, to the dynamics of proteins in our own cells, it is all about molecules: what do they look like, how do they move? Challenging questions, but fear not! Molecular simulations (sometimes) do have the answers... in fact, you just need a laptop to do BIG science!

**Chem Soc**



ChemSoc is a student run society who have a dedicated outreach team. With regular visits to primary and secondary schools, we hope to inspire the future generation to study chemistry.

On our stand, we have some of our favourite experiments – a dry ice demonstration, milk art, mini volcanoes, non-Newtonian liquids and fruit batteries. We also have a chance for you to explore our undergraduate teaching lab as well as a lasers research lab!!

**CFSA**



Research at the Centre for Fusion, Space, and Astrophysics (CFSA) focuses on plasma physics applied to the grand challenges of magnetic and inertial fusion power, space physics, solar physics, and astrophysics. Visit us to learn what it's like to be a researcher in the field of plasma physics, see the latest movies and images of the Sun from NASA's Solar Dynamics Observatory and make your own magnetic sunspot.

How do we feel about touching soil?

Come along and confront your fears – or let us know if you're never happier than when up to your elbows in mud!

**Centre for  
the History  
of Medicine**



Sophie Greenway's PhD research: 'Growing well: Dirt, Health and the Home Gardener 1930-70' is based in the Centre for the History of Medicine. She uses evidence from twentieth century media to explore how hygiene in the home was linked to modernity, and to consider what impact this had on how British people used their gardens. Today's activity challenges us to think about our relationship with soil today – it is 'dirty', but it provides fresh and healthy food. Have we become so detached from the soil that we struggle to truly value it?

**Diamond  
Science and  
Technology  
CDT**



The Diamond Science and Technology Centre for Doctoral Training researches many fascinating properties of diamond, ranging from the creation of synthetic diamond to using it to clean up contaminated water. On our stand you will get to witness some of the remarkable material properties by wielding

**Energy GRP**



man-made diamonds, and begin to interact with diamond in ways which will be sure to surprise you!

The rise in the global demand for energy requires profound changes in the way in which it is produced and utilised. Such changes are vital if ambitious targets for reducing greenhouse gas emissions are to be achieved. 'Energy' is one of the University of Warwick's research priorities and we are addressing global challenges through our world-class multi-disciplinary research. Our display will focus on the science of solar energy generation.

**EngineeringUK**



Come and try our engineering challenge for 11-14 year olds. Design and build a package that will hold life-saving food. Your package must be strong enough to be dropped from a 2-metre height without breaking.

There are lots of different materials to choose from but we want you to try and make the most cost effective package you can. The best designs will be cheap and strong. Be Creative! Be an Engineer!

**Engineers Without Borders**



Engineers Without Borders Warwick are a student run society for anyone who is interested in International Development and Renewable Technologies. Through engineering solutions we serve the needs of disadvantaged communities all over the world. Our stand will present some of the amazing projects we're running this year on campus.

Also power our bike for your free smoothie!

**Warwick Estates**



Staff and students are researching various issues around sustainability, be that energy generation or how manmade climate change might affect our world. We all have a part to play in making a positive impact, so come along to learn about some of the simple actions you can take and also learn what is truly at stake

**Flux: Moving Science**



Come and Move Science with FLUX Dance! Moving Science Workshops are a innovative, creative and fun way to explore STEM subjects. See the science of forces come alive through kinaesthetic learning and get dancing with code! We promise lots of games, creativity and fun. Workshops are suitable for students aged 5 – 11 years old.

**IET**



The IET is one of the world's largest engineering institutions with over 168,000 members in 150 countries. It is also the most multidisciplinary – to reflect the increasingly diverse nature of engineering in the 21st century.

**iGEM**



Come and make some real lightning, measure voltage, try out our table-tennis ball launcher and our burglar alarm, or solve the maths behind the card trick!

iGEM is a synthetic biology competition, which was established by MIT in 2003. 300 teams from around the world spend their summers building and testing their projects, before gathering to present their work and compete in Boston, Massachusetts. Teams usually consist of engineers, biologists, chemists, and even the odd humanities student! This highlights the fact that synthetic biology is a truly interdisciplinary field.

Come and talk to members of the 2017 Warwick iGEM team about last year's project and discuss some of the exciting genetic engineering applications in use today."

**Imagineering Foundation**



The Imagineering Foundation is an independent education charity that aims to enthuse and nurture young engineers of the future. Its main activities are after-school Imagineering Clubs for 8-13 year olds, public events, such as the Imagineering Fair, special projects on behalf of engineering companies and in-school challenges demonstrating the applications of technology. At the XMaS Science Gala, the Imagineering display focuses on computer controllable robotic vehicles and electricity generation from renewable energy.

**Innovative Manufacturing GRP**



The Innovative Manufacturing Global Research Priorities core areas of Circular Economy, Agri-Manufacturing, Industrial Biotechnology and Industry 4.0, are all aligned to both national and international priorities for industry and society. This GRP brings together engineers, chemists, physicists, computer scientists, mathematicians, statisticians and life scientists to position Warwick as a global centre of excellence in the multidisciplinary research that underpins these innovative manufacturing priority areas.

Come and visit our area and experience some of our associated initiatives. Sponsoring student interns and projects brings theory to life.....can you make an eco-friendly and cost effective crash structure to protect an egg dropping at high speed??? Think of a driver in a high speed racing car!!

**Institute of Physics**



The Institute of Physics is a leading scientific society. It is a charitable organization with a worldwide membership of more than 50,000, working together to advance physics education, research and application.

This stand will welcome all age groups and interest levels - from

**Lanchester  
Interactive  
Archive**



doing fun little experiments to receiving advice on your university or career options. Or maybe you would like to sign up as a member.

Visit the pop-up Lanchester Interactive Archive where you can have a taste of the full exhibition and discover more about this little-known local hero. Genius and engineer Frederick Lanchester is probably best known for creating the first all-British four-wheeled motor car in 1895 and his hundreds of patents for concepts like turbo-charging, four-wheel drive and aeroplane winglets are still in use today.

See Lanchester's ideas come to life through amazing augmented reality; explore the online archive of unique sketches and patents that shape our lives today; play our games, challenging your engineering, flying and driving skills and find out more about the full exhibition and the link with STEM subjects today in Coventry University's Lanchester Library.

**Medical  
Mavericks**



Come and meet Medical Mavericks where you can get a print out of an ECG from your heart (that is the wavy line you see on TV hospital dramas), get a picture of the inside of your eye - take on an iPhone (get it... eye phone!) and for you younger visitors you can discover if you are going to grow taller with an ultrasound machine. All this is mixed in with loads of fab info careers in the NHS that you have never heard of before!

**NPL**



NPL is the UK's National Measurement Institute building the most accurate measuring instruments on earth. Some of their cool science really does need to be done at low temperatures so we have some incredibly low temperature liquids, one of which we will have fun with today. Be ready for cloudy spills and thrills in the Liquid Nitrogen Science Show!

**Physics  
Society**



Hi there, we are Warwick Physics Society. We are an academic society at Warwick focused on providing a friendly and productive atmosphere for students in the physics department. The physics society runs help and revision sessions as well as organising social events for students. Some of our events include bowling, laser quest, frequent talks from leading physicists, a joint spring ball with BioSoc, themed nights out, trips to scientific institutions and much more!

**Royal  
Society of  
Chemistry**



Come and find out where studying chemistry can take you. Discover the properties of different types of plastics, why are they like this? Identify different types of plastic using high-tech infra-red equipment and talk to our scientists about what it's like to be working on materials of the future.

**Sciencegrrl**



Sciencegrrl is passionate about celebrating women in science and passing on the love of science to the next generation. We try to teach science concepts in a fun and interesting way. Today, children would get to know about natural selection. Children would be able to understand why some species get extinct and why some take over the world??

**STEMtastic**



STEMtastic is an education consultancy with a focus on Science, Technology, Engineering and Maths founded by Kirsty Bertenshaw. STEMtastic aims to initiate or develop a school's STEM provision by integrating a well planned and resourced programme of inter and extra- curricular activities, training staff and demonstrating good practice. As each school's requirements are different, STEMtastic offer a bespoke service to meet your needs.

**School of Engineering**



Catalytic synthesis of value-added chemicals from renewable biomass is an important way to reduce current dependence on fossil-fuel resources and reduce the carbon footprint of chemical industry. In this regard, heterogeneously catalysed reactions will play a major role in the processing of the platform molecules to valuable chemicals, biofuel and biopolymer precursors by means of aqueous-phase processing and environmentally sound methodologies. Here we will present how our novel materials enhance the efficiency of biomass conversion, and we will show a state-of-the art in-situ characterisation technique with X-Ray Absorption Spectroscopy to further our understanding on the fundamental principles of the structure activity relations of these materials.

**School of Life Sciences Outreach**



Fights, traders, castles, sieges and war. Mongol hordes, gerbils, rats, boats and fleas. The participants in the entry of plague into Europe and Asia in the mid 14th century make a surprising cast. The result of this interaction killed around 200 million people. Using jelly babies, catapults and castles you'll reenact part of this story. Come and find out about the causes, biology and spread of this most famous of pandemics. What are the chances of Yersinia pestis and the Black Death returning? @SLSOutreachWrwk"

**Warwick  
Antimicrobial  
Interdisciplin  
ary Centre  
(WAMIC)**



The tiniest organisms can have the biggest impact. Discover how scientists at Warwick are fighting bacteria that are resistant to antibiotics. Explore the targets of antibiotics with our virtual reality demonstration, and see the bacteria for yourself at the microscope station.

**WISB**



### **Biological Circuits – where's the logic?**

The concepts behind electronic logic gates are being used in biology. By doing so, scientists are better able to control how cells behave. In fact, doing so allows scientists to programme cells in the same way computers can be programmed. Come along to make your own OR, AND and NOR logic gates, and hear how they work in cells.

**WMG  
Outreach**



Come along and find out about 3D printing. See a 3D printer in action and have a go at using 3D CAD software used to produce digital design files for 3D printing.

**Warwick  
Racing**



Interested in Formula 1, motorsport, and racing? Visit Warwick Racing for the exciting opportunity to see our Formula Student vehicle, built and raced around the world by students here at the university.

Earn yourself a prize in our hands-on pit stop activity, where you and your team will have to change a wheel as quickly as possible! Prizes will be awarded to lightning-fast performances.

**Warwick  
Robotics**



We are the 2017/18 Warwick Mobile Robotics (WMR) team. A diverse group of 7 MEng students from the University of Warwick designing and building an Urban Search and Rescue Robot. WMR is a research group at the University of Warwick specialising in the development of urban search and rescue robots for use in surveillance, disaster zones and safe monitoring of hazardous sites? Come and control a Robot.

**Warwick  
Sub Team**



The Warwick Sub project comprises nine students in their third and fourth year of Engineering. Their challenge each year is to design, build and market a human-powered submarine, with the view of competing against other universities on the international stage. In June 2017, the Team will be entering their submarine in the International Submarine Races (ISR). Attendees will discover the vital concept of 'neutral buoyancy'. They will start off with a material that sinks and have to make it sit perfectly in a column of water without sinking or surfacing.

Please pick up a pen and sticky note and leave your feedback on our feedback wall.

***Thank you for attending and to all the helpers that made this event possible.***

***And special thank you to our sponsors:***

