

2014 Christmas Lecturer to curate @RealScientists

The Royal Institution of Great Britain collaborates with @RealScientists, a rotational Twitter account, to connect thousands of followers around the world with the wonders of engineering.

30 October 2014 PROFESSOR DANIELLE GEORGE, who is set to deliver the 2014 CHRISTMAS LECTURES with the Royal Institution of Great Britain (Ri), will curate the REAL SCIENTISTS Twitter account for one week, beginning **Sunday 2 November 2014**.

The Real Scientists (@RealScientists) Twitter account features a different scientist or engineer every week, sharing unique insights into their life and work with more than 14,000 followers from around the world. Curators over the past two years have included researchers, science communicators, science teachers, science journalists, and science policy makers.

Danielle is a Professor of Radio Frequency Engineering at The University of Manchester in the UK. In this year's CHRISTMAS LECTURES 'Sparks will fly: How to hack your home', she will reveal how anyone can use their imagination to change the world by from their very own home by taking control of the devices we use every day. Danielle will take three great British inventions – a light bulb, a telephone and a motor – and demonstrate how viewers can adapt, transform and 'hack' them to do extraordinary things.

While curating @RealScientists, Danielle will engage with an audience that includes members of the scientific and engineering community, students and the general public. She will present a behind the scenes view of how the CHRISTMAS LECTURES demonstrations and script are developed, share an insight into her outreach work in local schools, and explain the aims and impact of her research at The University of Manchester.

In addition, she hopes to inspire the @RealScientists community to come up with and share their own experiments and home hacks via Twitter and the Ri's new online community www.hackgallery.org.

Danielle said: "When I was eight years old I was given a telescope by my parents and I was fascinated - I would get up in the middle of the night to watch lunar eclipses. It was the first time I realised how mathematics and physics could be used in a practical and useful way and I knew immediately that this kind of hands-on investigation was what I wanted to do in life.

"Today's generation of young people are in a truly unique position. The technology we use and depend on every day is expanding and developing at a phenomenal rate and so our society has never been more equipped to be creative and innovative.

"If we all take control of the technology and systems around us, and think creatively, then solving some of the world's greatest challenges is only a small step away. I believe everyone has the potential to be an inventor!"

Matthew Partridge from Real Scientists said: *"While the Royal Institution is already famed for its outreach and engagement, this is the first time they have worked directly with a rotational Twitter project like @RealScientists. This shows how much they value the discussion and engagement of the Twitter community and are always looking for new ways to connect with the international public."*

The CHRISTMAS LECTURES are the Royal Institution's biggest and most famous demonstration-based event for young people. Initiated in 1825 by Michael Faraday, the lectures have been broadcast on UK television over the festive period since 1966 and today are made freely available to an international audience via the [Ri Channel](#).

The 2014 CHRISTMAS LECTURES are produced by Windfall Films for BBC FOUR.

This year the Royal Institution will also collaborate with the online engagement website 'I'm an Engineer, Get me Out of Here'. Engineers from across the UK will be online to answer questions about the topics raised in the 2014 CHRISTMAS LECTURES from the general public and school groups from the first day of broadcast until the end of January 2015.

Find out more about RealScientists at www.realscientists.org and visit the Ri's website at www.rigb.org/christmas-lectures/sparks-will-fly to learn more about the 2014 CHRISTMAS LECTURES.

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Notes to Editors

2014 CHRISTMAS LECTURES® Sparks will fly: How to hack your home

A revolution is happening. Across the world people are taking control of the devices we use every day, customising them, creating new things and using the sparks of their imagination to change the world. Now it's your turn, and you can start with the things you have around you.

Electrical engineer, Prof Danielle George will take three great British inventions – a light bulb, a telephone and a motor – and show you how to adapt them and transform them to do extraordinary things. This is tinkering for the twenty-first century, using the full array of cutting edge devices that we can lay our hands on: 3D printers, new materials, online collaboration and controlling devices through coding.

Inspired by the great inventors and standing on the shoulders of thousands of people playing at their kitchen table or in their shed, Danielle will announce the new rules of invention and show you how to use modern tools and technologies and things from your home to have fun and make a difference to the world around you.

Anything could happen. Sparks will fly.

Lecture 1: The Light Bulb Moment

1878. Geordie inventor Joseph Swan demonstrates the first working light bulb. Now in 2014 we can find tiny LED's in almost everything we own. So can we use a humble light bulb to start our own imaginative, creative process? Danielle will announce the new rules of invention

and show you how to use modern tools and technologies to have fun and make a difference to the world around you.

Lecture 2: Making Contact

It was Scottish inventor Alexander Graham Bell who first managed to get the world's first telephone to transmit speech – and now we carry these amazing devices around in our pockets! We're now connected to everyone else in the world, so can we use these networks to solve problems? Danielle will innovate to make astonishing connections that Bell could only have dreamed of.

Lecture 3: A New Revolution

The Royal Institution's very own Michael Faraday demonstrated the world's first motor in 1822 – now we are surrounded by devices that spin, swing and saw. Engineers often find themselves in a cycle of prototyping, testing and perfecting, so can we use these principles to turn a motor into something world changing? Danielle will use her imagination and the new rules of invention to move things in ways that Faraday could only have dreamed of.

Broadcast dates to be confirmed.

About Professor Danielle George

Prof Danielle George is Associate Dean for Teaching and Learning in the Faculty of Engineering and Physical Sciences, and a Professor in the Microwave and Communications Systems research group at the University of Manchester. She completed her BSc in Astrophysics, MSc in Radio Astronomy at The Victoria University of Manchester based at Jodrell Bank Observatory, and her PhD in Electrical and Electronic Engineering with UMIST. She worked at Jodrell Bank Observatory as a senior Radio Frequency Engineer until 2006 when she took up a lectureship post in the School of Electrical and Electronic Engineering. She was awarded a Professorship earlier this year at the age of 38.

Danielle's expertise in radio frequency and microwave communications has a wide range of applications across a number of industries. To date most of her research and development work has been carried out on a variety of aspects relating to ultra low noise receivers for Space and Aerospace applications. She is the UK lead for amplifiers in the \$1B astronomical instrument, the Square Kilometer Array (SKA), the \$1B Atacama Large Millimeter Array (ALMA) telescope and has worked with NASA and ESA on the development of instrumentation for researchers exploring the Big Bang. She has worked with agriculturists on the development of instrumentation to measure water usage, and with a number of multi-national companies such as Rolls Royce where she worked on industrial gas turbine engines.

She thoroughly enjoys the teaching aspects of her career and lectures to both undergraduates and postgraduate students, in particular Electronic Circuit Design to undergraduates and Microwave Systems to MSc students. She is passionate about raising public awareness of the positive impact engineering has on all aspects of our everyday lives and highlighting to young people the immense depth and breadth of opportunities a career in engineering can offer.

The middle one of three sisters, Danielle grew up in Newcastle where her parents still live. Fascinated by science from an early age, she was given a telescope by her parents when she was eight years old and would regularly get up in the middle of the night to watch lunar eclipses. She credits this experience as the moment she first realised how physics and

mathematics could be applied in a practical sense outside the classroom and as the first step on her path to her current career.

She now lives in Manchester with her husband Richard.

Follow Danielle on Twitter at [@EngineerDG](#).

About the CHRISTMAS LECTURES®

The CHRISTMAS LECTURES are the Royal Institution's biggest and most famous, demonstration-based science events for young people. They are broadcast on UK television every Christmas and have formed part of the festive tradition for generations – often being compared to the Queen's Christmas message and the carols from Kings.

The CHRISTMAS LECTURES have been inspiring children and adults alike since 1825. The Lectures were initiated by Michael Faraday at a time when organised education for young people was scarce. He presented 19 series himself, establishing an exciting new way of presenting science to young people.

The CHRISTMAS LECTURES have continued annually since the 1825 series, stopping only during World War II. Many world-famous scientists have given the Lectures including Nobel Prize winners William and Lawrence Bragg, Sir David Attenborough, Carl Sagan, Lord George Porter and Dame Nancy Rothwell.

The CHRISTMAS LECTURES have been broadcast on television since 1966, first on the BBC and then on Channel Five, Channel Four and more4. In 2010, the Lectures returned to BBC Four and in 2013 the broadcast reached over 2 million viewers.

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