

# Developments in Modern Nano and Materials Chemistry - The Science of the Very, Very Small ...

Northern Lights Science Learning Partnership with the University of Bradford

**WEDNESDAY 6 DEC 2017**

The University of Bradford STEM Centre  
To book: <http://bit.ly/Nanotech-NL>

## Summary

This one day mind-expanding masterclass will show you how to bring the world of nanoscience, nanotechnology and advanced materials into your classroom. Focusing on the latest research and its application in the world about us, advances across a range of technologically relevant materials such as gold nanoparticles, magnetic nanoparticles, molecular organic frameworks and polymers will be explored.

Such materials are beginning to find uses in a wide variety of applications such as long life batteries, medical technologies and treatments for disease pathogens, sustainable technologies, solar energy cells, electric vehicles, lightweight and efficient materials for transportation, display screens amongst others. This "Christmas Lecture" style day of demonstrations and hands on practicals will enable you to use the latest advances in this area and see how to build links into your GCSE and A Level Chemistry curriculum to excite and inspire your students.

Working in state of the art facilities, participants will get the chance to meet and interact with academics developing such materials, the opportunity to make their own nanomaterials (gold nanoparticles) and use the latest 3-D visualisation techniques.

## Outcomes

You will be able to:

- **Take away a FREE kit to carry out your own nano-particle experiment in your classroom!**
- Identify new contexts and ideas for effective delivery of How Science Works
- Explore scientific issues and controversies
- Engage with inspiring teaching resources and approaches including practical work
- Work alongside scientists involved in cutting-edge research to develop knowledge and skills in authentic contexts

## Research Councils UK

Thanks to funding from the Research Councils UK, all CPD which is part of the "Bringing Cutting Edge Science into the Classroom" programme **qualifies for an RCUK bursary of up to £180**. State funded schools, colleges or universities in the UK can benefit from this funding for teachers, technicians and those on Initial Teacher Training (ITT).

**"Leading Academics"**

**"Cutting-Edge technology!"**

**"Nano-particle kit box to take away"**

**"Tour of state of the art facilities"**

**"Deepen classroom experiences"**

**"RCUK bursary available"**

Teaching School Alliance

**NORTHERN LIGHTS**



**UNIVERSITY OF BRADFORD**  
MAKING KNOWLEDGE WORK™



**SCIENCE**  
LEARNING PARTNERSHIP

# EVENT PROGRAMME

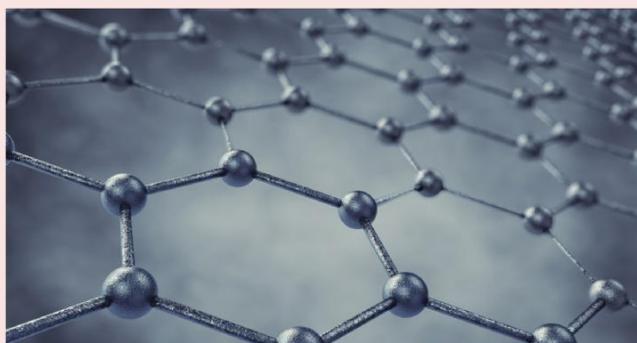
09.00	<b>Arrival and Tea/Coffee</b>
09.30	<b>Introduction and Welcome</b> Eleanor Belfield and Janet Smith-Harrison
09.40	<b>Key Note: Professor Stephen Rimmer, University of Bradford</b> "Functional materials in the 21st century: Nano, supramolecular, graphene and responsive polymers".
10.30	<b>Refreshments</b>
10.45	<b>Workshop A: Stephen Hickey, Dr Phillip Drake &amp; Dr Sanjit Nayak</b> Make your own nanomaterials!
12.45	<b>Lunch - a non nano Christmas treat!</b>
14.00	<b>Workshop B: Stephen Burdon</b>
15.15	<b>Plenary and Evaluations, Course Ends at 15.30</b>

There will be an Optional Tour after the course to visit the Analytical Centre and Life Sciences Learning Centre. - *Please email to express your interest!*

## Keynote:

"Functional materials in the 21st century: Nano, supramolecular, graphene and responsive polymers".

There are many advanced functional materials becoming available and Professor Rimmer will discuss these, his focus on detecting bacteria using responsive polymers as well as the University's multi-national collaboration in this area with colleagues in India. The talk will include key aspects of physical chemistry, such as thermodynamics, kinetics, chromatography, carboxylic acids and amides and will put chemistry into context by using the global problem of anti-microbial resistance.



## Workshop A:

Dr Stephen Hickey, Dr Philip Drake & Dr Sanjit Nayak:

Laboratory demonstration and hands-on activity covering the latest advances across a range of technologically relevant materials such as gold nanoparticles, magnetic nanoparticles, molecular organic frameworks, polymers etc.



## Workshop B:

Mr Stephen Burdon: A workshop to illustrate resources for teaching nano and materials chemistry, hands on practical work and demonstrations. This session will link participant's learning from the researchers into the classroom context and provide an opportunity to share ideas.

