

# Annual Physics CPD Day

## Ivybridge Community College

### Saturday 23rd June 2018, 9.15 – 15.45

All teachers of physics, technicians and trainees are welcome. Sessions will include ideas for those new to physics teaching as well the more experienced, with stimulating material to take back into school for use in your labs and classrooms with ages 11 upwards. Refreshments and lunch provided. **Book online at [www.bit.ly/southwest2018](http://www.bit.ly/southwest2018)**

### Programme for the Day

9.15 - 9.45	<b>Registration and refreshments and exhibition</b>
9.45 - 9.55	Welcome
9.55 - 10.45	<b>Keynote demonstration lecture: <i>Small Science – Big Future ...</i></b> <b>Dr Annela Seddon, Physics Lecturer, University of Bristol</b>

- *How can nanophysics help with photovoltaic power generation?*
- *Graphene, a nanomaterial – good for water purification?*
- *How can physics on the nanoscale be applied for health and medicine?*

*Annela develops activities for use in schools and will show us some demos and models to illustrate how such questions can be explored by students, for example in the Y10 curriculum.*

*Nanoscience and Nanotechnology allow scientists the chance to bring together Physics, Chemistry, Biology and Engineering to understand the world on this very small scale. Objects begin to behave in a weird and unpredictable way! How do scientists measure and understand these strange properties, and hope to apply them to solve some global problems?*

10.45 - 10.55	<b>Introductions</b>
10.55 - 11.15	Break for refreshments and exhibition
11.15 - 12.30	<b>Workshop 1</b> - choices overleaf
12.30 - 13.30	Lunch, exhibition and displays
13.30 - 14.45	<b>Workshop 2</b> - choices overleaf
14.50 - 15.40	<b>Have you ever shown them this?</b> <i>Tour our selection of classroom-ready, student-friendly teaching ideas</i>
15.40-15.45	<b>Evaluations and close (goody-bags on departure)</b>



#### **Expected outcomes - You will:**

- *Explore novel resources for teaching and supporting physics in the classroom*
- *Experience curriculum-focused activities that raise motivation and attainment*
- *Expand your understanding of some of the latest progress in physics*
- *Exchange ideas and best practice with colleagues*

For questions about the content of the day, contact Alastair Cuthbertson, IOP Physics Network Coordinator for Devon & Cornwall at [mandacuthbertson@gmail.com](mailto:mandacuthbertson@gmail.com)

For any booking queries contact Suzy Gray at [sg2@soton.ac.uk](mailto:sg2@soton.ac.uk)

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## **MORNING (11.15 – 12.30) SESSIONS – *choose one***

### **Workshop A Make & take a Current Electricity Testing Kit (KS4)**

Make a sample kit or two for your school for groups of students to easily obtain Current/Voltage measurements with various components. Reduce technician & teacher time spent on loose components; ensure secure connections! Meters connect to the board with standard 4mm plugs. Can be used later for series and parallel resistor combinations. Support with the simple soldering involved will be available. Free components provided. Teachers & technicians together are ideal for this workshop. Led by Liz Harwood and Phil Bunney, IOP

### **Workshop B Flipped Learning (KS4 – 5)**

Lewis has created hundreds of videos on his YouTube channel 'A Level Physics Online' with millions of views by students all around the world. In this session, he discusses approaches to flipped learning, videos resources currently available for Physics and also how to make your own material for your students. Led by Lewis Matheson, Kingswood School – SPN Link School

### **Workshop C Resources from the RAF100 Project (main focus KS3)**

The IOP has developed a set of eight STEM activities as part of the RAF Centenary programme and all are available free. In this workshop, try the various activities using simple and cheap equipment and see some of the accompanying short videos. The comprehensive pupil and teacher notes primarily for STEM or Science clubs and are aimed at KS3 and are also useful for practical work in lessons. The resources are also adaptable for investigating, explaining & developing concepts at KS4-5. Led by Richard Bonella and Helen Pollard, IOP

### **Workshop D Required GCSE Practicals (KS4)**

In this hands-on session you will be able to try out & evaluate working set-ups for common required practicals & to share ideas for making them more relevant, accessible & successful. Suitable for teachers & technicians. Led by Joe Rowing, Exeter Mathematics School – SPN Lead School

## **AFTERNOON (1.30 – 2.45) SESSIONS – *choose one***

### **Workshop E Thinking on your Feet – Football & Physics (KS3 – 5)**

How do you curve a free kick? How do you tackle most effectively? How do you kick a ball to go as far as possible? These and other mysteries unveiled both by a seamless integration of Physics and practical skills, which you can graft into your Physics schemes and perhaps motivate some unexpected students to study Physics in your classes. Led by Lawrence Cattermole & Neil Atkin, IOP

### **Workshop F Motor on a Pint – Make & Take (KS4)**

Understanding the motor effect and the application of Fleming's left hand rule. Make & take a motor model that you can put together using a festival beer cup. Suitable for teachers & technicians. Led by Joanna Kent, IOP

### **Workshop G Using isaacphysics.org in your GCSE & A level teaching (KS4 – 5)**

In this session, you will see how you can use Isaac Physics books and online resources in your GCSE and A-level teaching. You will also learn how to set (FREE) online homework assignments for your students and see their marks before you get into the next lesson. Less time marking; better feedback! Led by Ally Davies, Isaac Physics

### **Workshop H Nuclear Radiation & Particles (KS4 – 5)**

Presenting ideas for demonstrations and practical tasks to excite and enthuse students about the topics of atomic physics and nuclear radiation, using standard lab equipment and everyday items. We will include modelling activities & simulations, with and without a computer, to help students understand the mathematical concepts. Free set of worksheets, & find out how to build a giant cloud chamber using cheap household items! (NB not a make & take) Suitable for teachers & technicians. Led by Dorian Pascoe, Totnes Progressive School - SPN Lead School.

Workshops are run by IOP Network Coordinators and Teaching and Learning Coaches from the Stimulating Physics Network. There will be lots of useful references and resources for your teaching back in school!

**Venue** Ivybridge Community College, Harford Road, Ivybridge, Devon, PL21 0JA

**Date** Saturday 23rd June 2018

**Time** 9.45 – 15.45 (registration from 9.15)

**Cost** no charge to attend (supported by the IOP and Ivybridge Community College)

**Book online at** [www.bit.ly/southwest2018](http://www.bit.ly/southwest2018)