

# Manchester Regional Physics CPD Day 2020

Museum of Science and Industry, Manchester , M3 4FP

Thursday 13 February 2020

## Programme

09.30-10.00	<b>Registration</b>
10.00-11.00	Keynote lecture - Dr Jess Wade
11.05-12.30	Session 1 (Workshops A-C)
12.30-13.00	<b>Lunch</b>
13.00-13.30	Maths in physics
13.35-15.00	Session 2 (Workshops D-G)
15.00-15.15	<b>Coffee Break</b>
15.15-16.00	Physics Carousel
16.00-15.00	Evaluations, Raffle
15.00-15.15	<b>Close</b>

## Choosing your workshops

Please read about all the workshops before booking online.

## How to Register

Book your place at:

*If you have any problems booking or questions about the day, please*

*email [natanya.rodriago-candappa@iop.org](mailto:natanya.rodriago-candappa@iop.org)*

Workshop		Overview
<b>A</b>	<b>Domains, Maglev Trains and Automobiles: Applications of Electromagnetism</b> Workshop <b>Daisy Fox and Marian Edgley</b>	This workshop will suggest teaching approaches for electromagnetism at Key Stage 3 to 5. As well as looking at the practical applications of electromagnetism in our daily lives, we will also explore the more advanced physics ideas required for the physics GCSE and A-Level  <i>Suitable for specialist teachers teaching key stages 3, 4 and 5.</i>

Workshop		Overview
<b>B</b>	<p><b>Fieldwork: Bringing Electricity and Magnetism Together</b></p> <p>Workshop</p> <p><b>Darren Forbes</b></p>	<p>In this session we will look at approaches to teaching the topic of electromagnetism. This includes how to demonstrate and explain magnetic and electric fields, the magnetic fields generated by an electric current, the motor effect and electromagnetic induction.</p> <p>We will look at the practical applications of electromagnetism including microphones, loudspeakers, transformers and the National Grid. <i>Suitable for non specialist teachers of physics teaching key stages 3 and 4.</i></p>
<b>C</b>	<p><b>The Magic of Electromagnetic Waves</b></p> <p>Workshop</p> <p><b>David Farley</b></p>	<p>This session will concentrate on teaching the concept of electromagnetic waves at GCSE. It will look at ways to draw out the common features of electromagnetic waves as you move across the spectrum.</p> <p>There will be lots of examples and practical ideas to illustrate the uses of the different parts of the spectrum. <i>Suitable for non specialist teachers of physics teaching key stages 3 and 4.</i></p>
<b>D</b>	<p><b>Sunglasses, Violins, and Electrons</b></p> <p>Workshop</p> <p><b>David Farley</b></p>	<p>This session will concentrate on A level topics and will look mainly at teaching polarisation and standing waves.</p> <p>There will be demonstrations and ideas for practical work as well as ways to link standing waves to other aspects of physics. <i>Suitable for specialist teachers of physics</i></p>
<b>E</b>	<p><b>Surfing Through Waves with Ease</b></p> <p>Workshop</p> <p><b>Daisy Fox</b></p>	<p>The session will look at the development of some of the key concepts involved with teaching waves to GCSE, including key terms and practical approaches to teaching. There will be demonstrations and classroom hints and tips to help students over the conceptual barriers posed by some of the ideas in this topic. <i>Suitable for non-specialist teachers of physics.</i></p>
<b>F</b>	<p><b>High Intensity Circuit Training</b></p> <p>Workshop</p> <p><b>Darren Forbes</b></p>	<p>In this session we will look at approaches to teaching the topic of static and electricity and electric current in key stages three and four. Starting from the fundamentals of charge, current, potential difference and resistance we will look at an approach to teaching about electric circuits; including required practicals. We will evaluate the models used to explain electrical concepts and try out some approaches to help practical work to enhance understanding of the more demanding concepts. <i>Suitable for specialists teaching key stage 3 and 4.</i></p>
<b>G</b>	<p><b>Electricity 1</b></p> <p>Workshop</p> <p><b>Sasa Harper</b></p>	<p>In this workshop we will look at the theory of voltage, current and resistance and explore and evaluate popular models used to explain electricity to students. To address common misconceptions we will look at ways to reduce chaos when building and using circuits in the classroom.</p> <p><i>Suitable for non-specialists teachers of physics.</i></p>

Workshops for all	Overview
<p><b>Maths for Physics: How do you solve a problem?</b></p> <p>Talk</p> <p><b>Graham Perrin</b></p>	<p>There are underlying issues with confidence and transferability of maths skills that seem to hold many students back in physics. As a science teacher you may find yourself teaching them the maths every time, but what can we do to bridge the gap between the maths room and the science lab? Are there links across science topics that we don't get a chance to exploit? We'll look at strategies to help you best support your students' learning and review the bigger picture in your schools.</p>
<p><b>Physics Carousel</b></p> <p>Workshop</p> <p><b>5 IOP coaches</b></p>	<p>In this interactive session you will move around stations in</p>