

## MPS School Activity Report (October – December 2018)

### Staff have had mentions in the following press

#### *The Conversation*

Professor Seb Oliver and Dr. Nicos Georgious have both separately featured on *The Conversation*

#### *Thought Leaders*

Professor Marco Peccianti and Dr. Juan Sebastian Toterogongora were interviewed by 'Thought Leaders' on Nonlinear Ghost Imaging: A New Terahertz Imaging Concept

#### *The Times of India*

Professor Barry Garraway featured on *The Times of India* regarding the IIT-P hosts conference on Quantum and Atom Optics.

Physics researchers featured on *Photonics*, *ScienceDaily*, *Phys.org*, *EurekAlert!*, *PhysicsWorld*, and on *PNAS* (Proceedings of the National Academy of Sciences of the USA)

### Awards and Recognitions

**Professor Antonella De Santo** was awarded the **Senior Experimental Fellowship** at the Institute for Particle Physics Phenomenology (IPPP) in Durham

**Dr Nicholas Simm**, Research Fellow in Mathematics has received a **Royal Society University Research Fellowship**.

**Dr Lily Asquith**. Elected to Royal Society Science Policy Expert Advisory Committee, joined Windsor Fellowship as a mentor for destination stem and joined Newton International Fellowships Panel.

**Professor Bertram Duering** took up a visiting research appointment at the Department of Applied Mathematics and Theoretical Physics, University of Cambridge.

Also appointed as expert reviewer for European Commission in H2020 Marie Skłodowska-Curie actions Individual Fellowships (IF) 2018, Italian Ministry for Universities and a research proposal for King Fahd University of Petroleum and Minerals, KSA.

**Professor Barry Garraway** elected Chair of IOP Quantum Optics, Quantum Information and Quantum Control Group Committee.

### Areas of Knowledge Exchange

Konstantin Blyuss visited the National Academy of Sciences of Ukraine as part of RDF grant to collaborate on a joint project. 5-9 November.

Konstantin Blyuss, invited visit and a research seminar in the group of Prof Bruno Buonomo, Naples, Italy, 20-22 November.

**Off-campus talks delivered**

There have been 15 external talks reported by faculty in the following countries: Israel, Sweden, Italy, Germany, Switzerland, Japan, India, Australia, Colombia.

**Impact**

**Professor Matthias Keller.** Ongoing collaboration with Allecta LTD to commercialise optical fibre vacuum feedthroughs.

**Science and Technology's Committee Quantum Technologies Report**

Sussex provided the parliamentary Science and Technology Committee with evidence including an urge to boost funding for research into quantum technologies. The published parliamentary report has concluded that quantum technologies offer the opportunity for significant economic growth and improved capability across most industry sectors.

**Significant Research Outcomes**

**Professor Winfried Hensinger.** The Ion Quantum Technology Group, led by Winfried Hensinger have managed to significantly reduce the effects of environmental noise affecting trapped ion quantum computers.

<http://www.sussex.ac.uk/staff/newsandevents/?page=1&id=46639?ref=email>

**Professor Matthias Keller.** There has been the first worldwide demonstration of strong ion-cavity coupling, a prerequisite for scalable quantum computing with ions.

**Professor Matthias Keller.** Novel scheme to prepare molecular nitrogen ions in ro-vibrational ground state.

**Iacopo Vivarelli.** Soft tagging algorithms for ATLAS in official reconstruction algorithm.

**Other news**

Jacob Dunningham, Xavier Calmet and Matthias Keller were part of a successful bid led by Oxford University from STFC to set up the collaborative network "Quantum sensors for fundamental physics".

**Publications deposited in SRO**

Mathematics

- 7 papers accepted
- 12 papers published

Physics and Astronomy

- 4 papers accepted
- 94 papers published

**Grant Report**

- 16 submitted
- 9 Awarded