

## EPSRC CDT in Intelligent Sensing and Measurement

### Annual Conference

**5th November 2019**

Royal Society of Edinburgh | 22-26 George St | Edinburgh EH12 2PQ

09:00 **Registration and Coffee**

### PROGRAMME

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#### Session 1

Prsider: *Jack Radford, University of Glasgow*

09:30 **Sensing and Imaging at Optos: Several non-obvious examples**  
*Jano Van Hemert, Research Director, Optos*

09:50 **Listening to Einstein's Messengers**  
*Giles Hammond, Institute for Gravitational Research, University of Glasgow*

#### 4<sup>th</sup> Year CDT-ISM Students

10:20 **Potential Future of Optical Microscopy**  
*Tomas Aidukas, University of Glasgow*

10:30 **Sensing in the Attoscale: The Case of Singlet Oxygen**  
*Sergio Bermudez, University of Edinburgh*

10:40 **Solid State Neutron Detector Implementation at the European Spallation Source**  
*Laura Boyd, University of Glasgow*

10:50 **Refreshment Break**

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#### Session 2

Prsider: *Jason Norman, University of Edinburgh*

11:20 **From Bench to Business...**  
*Damian Gardiner, Entrepreneur and founder of Optomel*

#### 4<sup>th</sup> Year CDT-ISM Students

11:50 **Blood Plasma Separation from Capillary Samples**  
*Giulia Deiana, University of Edinburgh*

\*Video Presentation

12:00 **An Iodine-Based N-Terminal Mass Defect Labelling Strategy for Improved De Novo Top-Down Protein Sequencing**

*Laurentis Galanopoulos, University of Edinburgh*

12:10 **Sensing with a Twist: Biomolecular Detection Using Chiral Metamaterials**

*Cameron Gilroy, University of Glasgow*

## 2<sup>nd</sup> Year CDT-ISM Student Poster Pitches

12:20 **Dark Current and Dark Count Rate Measurements on Ge-on-Si Single Photon Avalanche Detectors (SPADs)**

*Conor Coughlan, University of Glasgow*

12:21 **Investigation of Sub-Micron Fluctuations in Apparent Beam Position with Temperature in Silicon Quadrant Photodiodes**

*Andrew Earle, University of Glasgow*

12:22 **A Portable Lens-free Holographic Microscope for the Identification of S.Mansoni Eggs in Fecal Smear Samples**

*Oliver Higgins, University of Glasgow*

12:23 **Atomic Layer Deposition of TiN for the Development of Microwave Kinetic Inductance Detectors**

*Ciaran Lennon, University of Glasgow*

12:24 **Machine Learning and Inverse Problem Methods for Imaging Through a Multi-Mode Fibre**

*Jack Radford, University of Glasgow*

12:25 **Fluids' Viscoelasticity Drives Self-assembly of Particle Chains in Shear Flow**

*Matthew Smith, University of Glasgow*

12:26 **A Semi-Absolute MEMs Grayscale**

*Richard Walker, University of Glasgow*

12:27 **Electrochemically Triggering Gelation**

*Ian Bennett-Wright, University of Edinburgh*

12:28 **Lactate Sensing with Microelectrodes**

*Kayleigh Doherty, University of Edinburgh*

12:29 **Head Wearable Microwave Sensing Devices**

*Mark Evans, University of Edinburgh*

12:30 **A Tougher Lineage of Silicon for Sensing in Harsh Environments**

*Alberto Moreno Guerrero, University of Edinburgh*

12:31 **Pick and Place Approaches for Uniformity Improvement on X-ray Flat Panel Sources**

*Salvador Barranco Carcele, University of Edinburgh*

12:32 **Oxygen Sensing Using Carbon Nanodots**

*Gregory Myles, University of Edinburgh*

12:33 **Use of Fluorescent Base Analog as a Sensor of Guanosine Self-Assembly to Form Nanostructures**

*Alix Bailie, University of Edinburgh*

12:34 **Lunch**

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### Session 3

President: *Conor Coughlan, University of Glasgow*

14:00 **The use of Silicon Cold Cathodes in a Commercial X-ray Source**

*Aquila Mavalanker - Principal Scientist, Adapix Ltd (Royal Society Industry Fellow)*

## 4<sup>th</sup> Year CDT-ISM Students

- 14:30 **Ultra-Small Size, Ultra-Low Power Implantable Microchip for the Detection of Biopotential Signals**  
*Jose Cortes Guzman, University of Glasgow*
- 14:40 **Fresnel Cone Beams in Multiphoton Microscopy**  
*Ryan Hawley, University of Glasgow*
- 14:50 **Fluorescent Imaging of the Retina and Deep within Tissue**  
*Julia Noorbakhsh, University of Glasgow*
- 15:00 **Vapour Etch Selectivity's for MEMS and NEMS Fabrications**  
*Markus Ronde, University of Edinburgh*
- 15:10 **Sensing Habitability in Micro-Environments**  
*Yuchen Shang, University of Edinburgh*
- 15:20 **Ultra-Thin and Flexible CMOS Technology: ISFET-Based Microsystems for Biomedical Application\***  
*Anastasios Vilouras, University of Glasgow*
- 15:30 **Refreshment Break**
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### Session 4

President: *Salva Carceles Barranco, University of Edinburgh*

- 15:50 **Quantitative Mapping of Microfluidic Properties using Fluorescence Lifetime Imaging**  
*Anita Jones, University of Edinburgh*

## 3<sup>rd</sup> Year CDT-ISM Student 3 Minute Thesis/Video

- 16:20 **Using Droplet Microlasers as Chemical Sensors**  
*Jason Norman, University of Edinburgh*
- 16:23 **Cellular Redox Potential, Why Am I Interested and Should You Be?**  
*William Skinner, University of Edinburgh*
- 16:26 **Mapping the World in 3D, One Photon at a Time**  
*Konstantinos Bantounos, University of Edinburgh*
- 16:29 **Skin Surface Sensing for Health Monitoring**  
*Fiona Moore, University of Edinburgh*
- 16:32 **Measuring Forces on Cells in Real-Time in 3D**  
*Michael Handley, University of Glasgow*
- 16:35 **TBC**  
*Sam Hutchings, University of Edinburgh*
- 16:38 **The Great Pyramids of Glasgow**  
*David Atkins, University of Glasgow*
- 16:41 **Electrochemical Extraction of Neutron Poisons for Next Generation Molten Salt Reactors**  
*Nigel Lucas, University of Edinburgh*
- 16:44 **Electrospinning Conductive Nanofibers for Wearable Flexible Sweat Sensing**  
*Michael Chung, University of Edinburgh*
- 16:47 **Close**

We would like to invite all attendees to the drink's reception in the Royal Society of Edinburgh.

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