

# PROGRAMME



**PHOTONICS  
IRELAND  
2017**

**Radisson Blu Hotel, Galway  
September 13 – 15<sup>th</sup> 2017**

<http://photonicsireland.ie/>



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## Foreword

Welcome to Photonics Ireland 2017. The biennial Photonics Ireland conference series is the premier conference event for photonics research in Ireland. With a list of high profile national and international invited speakers, the main purpose of the conference is to showcase some of the latest research in photonics. Papers will describe the latest achievements in important technical areas of photonics and will provide an up-to-date overview of new research directions. The conference will also provide new stimulation for ongoing research in these fields. Technical topics include:

- Biophotonics and Optical Sensing
- Imaging
- Laser-Materials and Laser-Plasma Interactions
- Nanophotonics and Plasmonics
- Optical Communications and Networks
- Photonic Integration and Packaging
- Photonic Devices
- Photonic Materials
- Quantum Optics and Quantum Technologies
- Entrepreneurship in Optics and Photonics

With a commercial aspect – a session on Entrepreneurship – and activities linked to the International Year of Light, the conference will benefit both students and other attendees, with a focus on the economic importance of the science. The event will also provide students the opportunity to showcase aspects of their work as part of a poster exhibition and with a social setting to encourage networking.

### **Conference Chair:**

Prof. Martin Leahy  
School of Physics, NUI Galway  
Email: [martin.leahy@nuigalway.ie](mailto:martin.leahy@nuigalway.ie)

### **Programme Committee Chair:**

Dr Gerard O'Connor  
School of Physics, NUI Galway  
Tel: +353 91 492513 Email: [Gerard.connor@nuigalway.ie](mailto:Gerard.connor@nuigalway.ie)



## Technical Programme Committee

### **Biophotonics and Optical Sensing**

Hugh Byrne (DIT)

Tia Keyes (DCU)

Martin Leahy (NUIG)

Malini Olivo (NUIG)

Bryan Hennelly (NUIM)

Dmitri Papkovsky (UCC)

Stefan Andersson-Engels (Tyndall)

Alan Ryder (NUIG)

### **Imaging**

Nicholas Devaney (NUIG)

Thomas Naughton (NUIM)

John Sheridan (UCD)

Brian Vohnsen (UCD)

Peter Dockery (NUIG)

Sergey Alexandrov (NUIG)

Christophe Silien (UL)

### **Laser-Materials and Laser-Plasma**

#### **Interactions**

Dermot Brabazon (DCU)

John Costello (DCU)

Padraig Dunne (UCD)

James Lunney (TCD)

Gerard O'Connor (NUIG)

### **Nanophotonics and Plasmonics**

Louise Bradley (TCD)

Enda McGlynn (DCU)

James Rice (UCD)

Dominic Zerulla (UCD)

Bob Pollard, (QUB)

Liam O'Faolain (CIT)

Deirdre Kilbane (UCD)

### **Optical Communications and Networks**

Liam Barry (DCU)

Gerald Farrell (DIT)

Elfed Lewis (UL)

Paul Townsend (Tyndall)

Colette McDonagh (DCU)

Izabela Naydenova (DIT)

### **Photonic integration and packaging**

Frank Peters (UCC-TNI)

Peter O'Brien (TNI)

### **Photonic Devices**

Brian Corbett (Tyndall)

John Donegan (TCD)

Stephen Hegarty (CIT-Tyndall)

Guillaume Huyet (CIT-Tyndall)

Pascal Landais (DCU)

John McInerney (UCC-Tyndall)

### **Photonic Materials**

Werner Blau (TCD)

Paul Eastham (TCD)

Eoin O'Reilly (UCC-Tyndall)

Peter Parbrook (UCC-Tyndall)

Martyn Pemble (UCC-Tyndall)

David McCloskey (TCD)

**Quantum Optics and Quantum Technologies**

Emanuele Pelucchi (Tyndall)

Andreas Ruschhaupt (UCC)

Mauro Paternostro (QUB)

Sile Nic Chormaic (OIST-Japan)

Jiri Vala (NUIM)

**Entrepreneurship in optics and photonics**

Organisers: Dr Patrick Morrissey (Tyndall)

Frank Smyth (Pilot Photonics, TCD)

## Registration

Wednesday	13 <sup>th</sup> September (08.00-09.00) First floor lobby, Radisson Blu Hotel
Thursday	14 <sup>th</sup> September (08.30-09.00) First floor lobby, Radisson Blu Hotel
Friday	15 <sup>th</sup> September (08.30-09.00) First floor lobby, Radisson Blu Hotel
WiFi	Username: Photonics Ireland 2017 Password: radissonblu

## Sponsors of the Photonics Ireland 2017 Conference



## Wednesday 13<sup>th</sup> September 2017

8:00-9:30	Registration
Conference Opening Proceedings	
9:30-9:45	Welcome Address: Martin Leahy
9:45-10:15	A West of Ireland Perspective on Optical Super Cycles - Paul Phelan
10:15-11:00	Biophotonics@Tyndall – The interface between light and life Stefan Andersson-Engels
11:00-11:30	Coffee Break
11:30-13:00	Session 1. Imaging 1 Session Chair: Thomas Naughton (NUI Maynooth)
11:30-11:45	<b>Continuous-wave terahertz in-line digital holography</b> Min Wan <sup>1</sup> , J. J. Healy <sup>1</sup> , Lu Rong <sup>2</sup> , J. T. Sheridan <sup>1</sup> <i><sup>1</sup>School of Electrical &amp; Electronic Engineering, University College Dublin, Belfield, D4, Ireland, <sup>2</sup>College of Applied Sciences, Beijing University of Technology, Beijing, 100124, China</i>
11:45-12:00	<b>Spatial resolved determination of cross-linking differences in polymers using imaging low-coherence interferometry</b> Ch. Taudt <sup>1,2,3</sup> , T. Baselt <sup>1,2,4</sup> , B. Nelsen <sup>1,2</sup> , E. Koch <sup>3</sup> and P. Hartmann <sup>1,2</sup> <i><sup>1</sup>University of Applied Sciences Zwickau, Dr. Friedrichs-Ring 2a, Zwickau, Germany, <sup>2</sup>Fraunhofer Application Center for Optical Metrology and Surface technologies at Fraunhofer IWS, Zwickau, Germany, <sup>3</sup>Technische Universität Dresden, Medizinische Fakultät Carl Gustav Carus, Dresden, Germany <sup>4</sup>Technische Universität Dresden, Fakultät Maschinenwesen, Dresden, Germany</i>
12:00-12:15	<b>Investigation of reflectance properties of the cone mosaic in healthy and diabetic subjects</b> L. Mariotti <sup>1</sup> , N. Devaney <sup>1</sup> , G. Lombardo <sup>2,3</sup> , and M. Lombardo <sup>3</sup> <i><sup>1</sup>Applied Optics Group, School of Physics, National University of Ireland, Galway, Ireland, <sup>2</sup>Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche, Viale F. Stagno D'Alcontres 37, 98158, Messina, Italy, <sup>3</sup>Vision Engineering Italy srl, Via Adda 7, 00198 Rome, Italy, <sup>4</sup>Fondazione G.B. Bietti IRCCS, Via Livorno 3, 00198 Rome, Italy</i>
12:15-12:30	<b>High Speed, High Resolution and Real Time Motion Tracking and 3D Imaging Using Three Triple Illumination and Parallel Phase Shift Interferometry</b> A. Nazarov <sup>1</sup> , M. Ney <sup>1</sup> , and I. Abdulhalim <sup>1</sup> <i><sup>1</sup>Department of Electro-Optic Engineering and the Ilse-Katz Institute for Nanoscale Science and Technology, Ben Gurion University, Beer Sheva 8410501, Israel</i>



<b>12:30-12:45</b>	<b>In-focus depth estimation using deep learning of cells encoded in digital holograms</b> Tomi Pitkäaho <sup>1</sup> , Aki Manninen <sup>2</sup> , and Thomas J. Naughton <sup>1</sup> <sup>1</sup> <i>Department of Computer Science, Maynooth University, Maynooth, Co. Kildare, Ireland,</i> <sup>2</sup> <i>Faculty of Biochemistry and Molecular Medicine, University of Oulu, Finland</i>
<b>12:45-13:00</b>	<b>An opto-mechanical dispersive artificial eye</b> M.F. Coughlan <sup>1</sup> , T. Mihashi <sup>2</sup> , and A.V. Goncharov <sup>1</sup> <sup>1</sup> <i>Applied Optics Group, National University of Ireland, Galway, Ireland</i> <sup>2</sup> <i>Department of Ophthalmology, University of Tsukuba, Ibaraki, Japan</i>

<b>11:30-13:00</b>	<b>Session 2. Quantum Optics and Quantum Technologies</b> <b>Session Chair: Emanuele Pelucchi (Tyndall National Institute)</b>
<b>11:30-12:00</b>	<b>Quantum Information with Cold Atoms and Non-classical Light</b> Morgan W. Mitchell <i>ICFO - The Institute of Photonic Sciences, Castelldefels, Barcelona, Spain</i>
<b>12:00 -12:15</b>	<b>X-ray laser pulse characterisation via THz streaking</b> M.C. Hoffmann <sup>1</sup> , I. Grguraš <sup>2,3</sup> , C. Behrens <sup>4</sup> , C. Bostedt <sup>1,5</sup> , J. Bozek <sup>1,6</sup> , H. Bromberger <sup>2,3</sup> , A.L. Cavalieri <sup>2,3</sup> , R. Coffee <sup>1</sup> , L.F. DiMauro <sup>7</sup> , Y. Ding <sup>1</sup> , G. Doumy <sup>5</sup> , W. Helml <sup>9,10</sup> , M. Ilchen <sup>1,10</sup> , R. Kienberger <sup>8,9</sup> , S. Lee <sup>11</sup> , A.R. Maier <sup>3,12</sup> , T. Mazza <sup>10</sup> , M. Meyer <sup>10</sup> , M. Messerschmidt <sup>1,13</sup> , S. Schorb <sup>1</sup> , W. Schweinberger <sup>8</sup> , K. Zhang <sup>7</sup> , and J.T. Costello <sup>14</sup> <sup>1</sup> <i>School of 1 SLAC National Accelerator Laboratory, 2575 Sand Hill Rd., Menlo Park, CA 94025, USA.</i> <sup>2</sup> <i>Max-Planck Institute for the Structure and Dynamics of Matter, Luruper Chaussee 149, 22761, Hamburg, Germany.</i> <sup>3</sup> <i>Center for Free-Electron Laser Science (CFEL), Luruper Chaussee 149, 22761 Hamburg, Germany</i> <sup>4</sup> <i>Deutsches Elektronen-Synchrotron DESY, Notkestr. 85, 22607 Hamburg, Germany.</i> <sup>5</sup> <i>Argonne National Laboratory, 9700 S Cass Ave, Lemont, Illinois 60439, USA</i> <sup>6</sup> <i>Synchrotron SOLEIL, l'Orme des Merisiers, Saint-Aubin BP48, 91192 GIF-sur-YVETTE CEDEX, France,</i> <sup>7</sup> <i>Department of Physics, The Ohio State University, Columbus, Ohio 43210, USA,</i> <sup>8</sup> <i>Max-Planck-Institut für Quantenoptik, Hans-Kopfermann-Straße 1, 85748 Garching, Germany,</i> <sup>9</sup> <i>Physik-Department E11, TU München, D-85748 Garching, Germany,</i> <sup>10</sup> <i>European XFEL GmbH, Albert-Einstein-Ring 19, 22761 Hamburg, Germany,</i> <sup>11</sup> <i>Korea Research Institute of Standards and Science (KRISS), Daejeon 305-600, Korea,</i> <sup>12</sup> <i>University of Hamburg, Institute of Experimental Physics, Luruper Chaussee 149, 22761 Hamburg, Germany,</i> <sup>13</sup> <i>National Science Foundation BioXFEL Science and Technology Center, 700 Ellicott St., Buffalo, New York 14203, USA,</i> <sup>14</sup> <i>School of Physical Sciences and National Center for Plasma Science and Technology (NCPST), Dublin City University, Glasnevin, Dublin 9, Ireland.</i>
<b>12:15-12:30</b>	<b>A site-controlled quantum dot entangled-light-emitting diode</b> S.T. Moroni, T. H. Chung, G. Juska, A. Pescaglini, A. Gocalinska and E. Pelucchi <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>12:30-12:45</b>	<b>Rydberg atom formation at submicron distances from optical nanofibres</b> Krishnapriya Subramonian Rajasree <sup>1</sup> , Tridib Ray <sup>1</sup> , Maria Langbecker <sup>2</sup> , Kristoffer Karlsson <sup>1</sup> and Sile Nic Chormaic <sup>1</sup> <sup>1</sup> <i>Okinawa Institute of Science and Technology Graduate University, Okinawa, Japan.</i> <sup>2</sup> <i>Johannes Gutenberg-University of Mainz, Germany</i>

13:00-14:00	Lunch
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14:00-15:30	Session 3. Imaging 2 Session Chair: John Sheridan (UCD)
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14:00-14:30	<b>Polymorphic beam: A new technology for contactless object manipulation in micro and nano world</b> J.A. Rodrigo and <u>Tatiana Alieva</u> , <i>Universidad Complutense de Madrid (UCM), Madrid, Spain</i>
14:30-14:45	<b>Multiple reference optical coherence tomography as a low-cost solution to sub-dermal fingerprint acquisition</b> <u>P.M. McNamara</u> <sup>1,2</sup> , J. Hogan <sup>2</sup> , C. Wilson <sup>2</sup> and M.J. Leahy <sup>1</sup> <sup>1</sup> <i>Tissue Optics and Microcirculation Imaging group, National Biophotonics and Imaging Platform, National University of Ireland, Galway, Ireland</i> <sup>2</sup> <i>Compact Imaging Inc. 897 Independence Avenue, Suite 5B, Mountain View, CA 94043, USA</i>
14:45-15:00	<b>CAOS smart microscope</b> Nabeel A. Riza and <u>Mohsin A. Mazhar</u> <i>School of Engineering, University College Cork, College Road, Cork, Ireland</i>
15:00-15:15	<b>Subtraction microscopy and super-resolution in the mid-infrared</b> <u>A.A. Mani</u> , M. Kumbham, R. Mouras, K. O'Dwyer, S.A.M. Tofail, and C. Silien <i>Department of Physics &amp; Bernal Institute, University of Limerick, Co. Limerick, Ireland</i>

14:00-15:30	Session 4. Laser Materials and Laser-Plasma Interactions Session Chair: Gerard O'Connor, NUI Galway
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14:00-14:30	<b>Freeform Optics – fundamentals, manufacturing and applications</b> Fengzhou Fang <i>MNMT-Dublin, UCD School of Mechanical &amp; Material Engineering</i>
14:30-14:45	<b>Precision Laser Processing of Indium Tin Oxide thin films on glass substrates</b> <u>Nazar Farid</u> and Gerard O' Connor <i>NCLA Laser Group, School of Physics, NUI Galway</i>
14:45-15:00	<b>Confined Atmospheric Pulsed Laser Deposition of Nanostructured Ultrathin films</b> <u>R. McCann</u> <sup>1,2,3</sup> , C. Hughes <sup>1,2</sup> , K. Bagga <sup>1,2</sup> , A. Stalcup <sup>2,4</sup> , M. Vázquez <sup>1,2,4</sup> and D. Brabazon <sup>1,2,3</sup> <sup>1</sup> <i>Advanced Processing Technology Research Centre, School of Mechanical &amp; Manufacturing Engineering, Dublin City University, Ireland</i> <sup>2</sup> <i>Irish Separation Science Cluster, National Centre for Sensor Research, Dublin City University, Ireland</i> <sup>3</sup> <i>National Centre for Plasma Science and Technology, Dublin City University, Ireland</i> <sup>4</sup> <i>School of Chemical Sciences, Dublin City University, Ireland</i>
15.00 – 15.30	<b>Applications of Vacuum Ultraviolet Laser Induced Breakdown Spectroscopy (VUV-LIBS) in the Analysis of Pharmaceuticals.</b> <u>Paddy Hayden</u> , Muhammad Bilal Alli, Syedah Sadaf Zehra,

	<i>School of Physical Sciences and the National Centre for Plasma Science and Technology, Dublin City University, Dublin 9, Ireland.</i>
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<b>15:30-16:00</b>	Coffee Break
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<b>16:00-17:30</b>	<b>Session 5. Biophotonics and Optical Sensing 1</b> <b>Session Chair: Tia Keyes (DCU)</b>
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<b>16:00-16:30</b>	<b>Clinical Raman Spectroscopy – the solution to existing unmet medical needs</b> Jurgen Popp <i>Institute of Physical Chemistry &amp; Abbe Center of Photonics (ACP) Friedrich Schiller University Jena Helmholtzweg 4 07743 Jena Germany</i>
<b>16:30-16:45</b>	<b>Application of Raman microspectroscopy and digital holographic microscopy to cytology</b> <i>B.M. Hennelly<sup>1-3</sup>, S. Barton<sup>1</sup>, X. Fan<sup>1</sup>, J.J.Healy<sup>4</sup>, D. Yue<sup>1</sup>, Y. Qin<sup>1</sup>, L. Kerr<sup>1</sup></i> <sup>1</sup> <i>Department of Electronic Engineering, Maynooth University, Maynooth, Ireland</i> <sup>2</sup> <i>Department of Computer Science, Maynooth University, Maynooth, Ireland</i> <sup>3</sup> <i>Hamilton Institute, Maynooth University, Maynooth, Kildare, Ireland</i> <sup>4</sup> <i>Department of Electronic Engineering, University College Dublin, Belfield, Dublin 4, Ireland</i>
<b>16:45-17:00</b>	<b>Coherent Raman scattering for multimodal detection of biomolecules on single particles</b> <i>K. O' Dwyer, R. Mouras, D. Rice, M. Gleeson, Syed. A. M. Tofail, T. Soulimane, C. Silien</i> <i>Department of Physics &amp; Bernal Institute, University of Limerick, Co. Limerick, Ireland</i>
<b>17:00-17:15</b>	<b>Lung function measurement in infants</b> <i>A.L. Pacheco<sup>1</sup>, E. Dempsey<sup>2</sup>, S. Andersson-Engels<sup>1</sup></i> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i> <sup>2</sup> <i>INFANT Center, Cork University Maternity Hospital Wilton, Cork, Ireland.</i>
<b>17:15-17:30</b>	<b>Method of combined optical spectroscopy in neuro-oncology</b> <i>T.A. Savelieva<sup>1,2</sup>, V.B. Loschenov<sup>1,2</sup>, S.A. Goryajnov<sup>3</sup>, and A.A. Potapov<sup>3</sup></i> <sup>1</sup> <i>A.M. Prokhorov General Physics Institute, Russian Academy of Science, Vavilov str.38, bld.5, 119991 Moscow, Russian Federation,</i> <sup>2</sup> <i>National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Kashirskoe Highway 31, Moscow, 115409, Russian Federation,</i> <sup>3</sup> <i>N.N. Burdenko Scientific Research Neurosurgery Institute, 4<sup>th</sup> Tverskaya-Yamskaya street, 16, 125047 Moscow, Russian Federation</i>

<b>17:30-18:45</b>	<b>Poster Session 1. and Wine Reception</b>
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## Thursday 14<sup>th</sup> September 2017

8:30-9:00	Registration
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9:00-9:45	Plenary 2: Silicon-based optomechanics: towards phononic components Clivia M. Sotomayor Torres, ICN2, Spain
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9:45-11:15	Session 6. Biophotonics and Optical Sensing 2 Session Chair: Stefan Andersson-Engels (Tyndall)
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9:45-10:15	<b>The progress on measuring cerebral blood flow with diffuse correlation spectroscopy</b> Turgut Durduran <i>Medical Optics Group, The Institute of Photonic Sciences, ICFO, Barcelona, Spain</i>
10:15-10:30	<b>Optical sensing using a plasmon active bio template platform</b> James Rice University College Dublin
10:30-10:45	<b>Optical Fibre Luminescence Sensor for Real-time LDR Brachytherapy Dosimetry</b> <u>P. Woulfe</u> <sup>1,3</sup> , S. O’Keeffe <sup>1</sup> , and F.J. Sullivan <sup>2,3</sup> <sup>1</sup> <i>Optical Fibre Sensor Research Centre, University of Limerick, Ireland</i> <sup>2</sup> <i>Prostate Cancer Institute, Galway Ireland</i> <sup>3</sup> <i>Galway Clinic, Galway, Ireland</i>
10:45-11:00	<b>High-speed, label-free mid-IR bio-imaging at subwavelength resolution</b> <u>Rabah Mouras</u> , Aladdin Mani, Mohamed Radzi Noor, Tewfik Soulimane, Christophe Silien and Syed A. M. Tofail <i>Department of Physics &amp; Bernal Institute, University of Limerick, Co. Limerick, Ireland</i>
11:00-11:15	<b>Review of current methods of acousto-optical tomography for biomedical applications”</b> <u>Jacqueline Gunther</u> <sup>1</sup> and S. Andersson-Engels <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>

11:15-11:45	Coffee Break
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11:45-13.15	Session 7. Optical Communications and Networks 1 Session Chair: Izabela Naydenova (DIT)
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11:45-12:15	<b>Silicon Photonics DWDM Transmitter with Semiconductor Mode-Locked Laser</b> <u>J. Witzen</u> <sup>1</sup> , A. Moscoso-Mártir <sup>1</sup> , J. Müller <sup>1</sup> , F. Merget <sup>1</sup> , S. Romero-García <sup>1</sup> , E. Mentovich <sup>2</sup> , R. Setter <sup>2</sup> , M. Nielsen <sup>2</sup> , A. Sandomirsky <sup>2</sup> , S. Rockman <sup>2</sup> , F. Lelarge <sup>3</sup> , R. Brenot <sup>4</sup>
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	<sup>1</sup> <i>Institute of Integrated Photonics, RWTH Aachen University, 52074 Aachen, Germany</i> <sup>2</sup> <i>MellanoX Technologies, Hakidma 26, Ofer Industrial Park, Yokneam, Israel</i> <sup>3</sup> <i>Almae Technologies, Route de Nozay, 91460 Marcoussis, France</i> <sup>4</sup> <i>Now at III-V Lab, 1 Av. Augustin Fresnel, 91767 Palaiseau, France</i>
<b>12:15 -12:30</b>	<b>A programmable and stable silicon photonic platform for flexible datacentre networking</b> <u>C. Browning</u> <sup>1</sup> , A. Gazman <sup>2</sup> , V. Vujicic <sup>1</sup> , A.P. Anthur <sup>1</sup> , K. Bergman <sup>2</sup> and L.P. Barry <sup>1</sup> <sup>1</sup> <i>Department of Electronic Engineering, Dublin City University, Glasnevin, Dublin 9, Ireland,</i> <sup>2</sup> <i>Department of Electrical Engineering, Columbia University, New York, NY10027, United States</i>
<b>12:30-12:45</b>	<b>Burst-mode 25 GB/S solutions for passive optical networks upstream channels</b> <u>M. Dalla Santa</u> , C. Antony, M. Power, A. Jain, P. Ossieur, G. Talli, and P.D. Townsend <i>Tyndall National Institute, University College Cork, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>12:45-13:00</b>	<b>Performance of burst-mode forward error correction in passive optical networks</b> <u>N. Brandonisio</u> <sup>1</sup> , S. Porto <sup>1</sup> , D. Carey <sup>1</sup> , P. Ossieur <sup>1</sup> , G. Talli <sup>1</sup> , N. Parsons <sup>2</sup> and P. Townsend <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i> <sup>2</sup> <i>Polatis Ltd., Cambridge, UK</i>
<b>13:00-13:15</b>	<b>A linear optical receiver in 65nm CMOS for pam-4 communication in short optical interconnects</b> <u>S. Facchin</u> , A. Jain, M. Power, C. Antony, S. Zhou, C. Scarcella, P. O'Brien, P. Townsend and P. Ossieur <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>

11:45-13.15

Session 8. Nanophotonics and Plasmonics  
Session Chair: Deirdre Kilbane (UCD)

<b>11:45 -12:10</b>	<b>Photonic crystal Fano lasers and Fano switches</b> Jesper Mork <i>Nanophotonics Theory and Signal Processing, Danmarks Tekniske Universitet</i>
<b>12:10-12:35</b>	<b>From the determination of the diameter of stars via the foundations of quantum optics to ghost imaging</b> Wolfgang Elasser <i>IAP - AG Halbleiteroptik, Technische Universität Darmstadt</i>
<b>12:35-12:50</b>	<b>Interactions between localized and propagating surface plasmons excited from an electrically driven STM tunnel junction source</b> <u>G.E. Donnelly</u> , P. Dawson and F. Huang <i>Centre for Nanostructured Media, School of Mathematics and Physics, Queen's University Belfast</i>
<b>12:50-13:05</b>	<b>Enhancing the electrical performance of MoS2 through non-radiative energy transfer</b> <u>J.J. Gough</u> <sup>1</sup> , M. O'Brien <sup>2</sup> , N. McEvoy <sup>2</sup> , A.P. Bell <sup>2</sup> , G.S. Duesberg <sup>2</sup> and A.L. Bradley <sup>1</sup>

	<sup>1</sup> <i>School of Physics and CRANN, Trinity College Dublin, Dublin 2, Ireland</i> , <sup>2</sup> <i>School of Chemistry, CRANN and AMBER, Trinity College Dublin, Dublin 2, Ireland</i>
<b>13:05-13:20</b>	<b>Ultrafast dynamics of plasmonic vortices</b> <u>D. Kilbane</u> <sup>1,2</sup> , G. Spektor <sup>3</sup> , A. K. Mahro <sup>1</sup> , B. Frank <sup>4</sup> , M. Orenstein <sup>3</sup> , H. Giessen <sup>4</sup> , and M. Aeschlimann <sup>1</sup> <sup>1</sup> Department of Physics, University of Kaiserslautern, 67663 Kaiserslautern, Germany, <sup>2</sup> School of Physics, University College Dublin, Belfield, Dublin 4, Ireland <sup>3</sup> Department of Electrical Engineering, Technion-Israel Institute of Technology, 32000 Haifa, Israel, <sup>4</sup> 4th Institute and Research Centre SCoPE, University of Stuttgart, D-70569 Stuttgart, Germany

<b>13:15-14:45</b>	<b>Lunch with Inclusion &amp; Diversity in Photonics in Ireland sponsored by IEEE</b>
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<b>14:45-16:00</b>	<b>Industry and Entrepreneurship</b>
<b>14.45 -15.10</b>	<b>Seeing the Light, A Career in the Photonics Industry</b> Eugene Arthurs, Executive Director SPIE, US
<b>15.10 – 15.30</b>	<b>The increasing role of photonic interconnect in the digitisation of society</b> Richard Pitwon - Photonics Group Leader, Seagate, UK
<b>15.30 -15.45</b>	<b>Engineering photonics solutions: the next level of integrated photonics'</b> Ruth Mackey - Photonics System Design Engineer & Director, mBryonics Ltd, Ireland
<b>15.45 – 16.00</b>	<b>IPIC Bootcamp</b> Start-up Idea 1 – PICDraw Sebastian Schultz Start-up Idea 2 – LightPower Naoise McSweeney Bootcamp 2018 – NDRC

<b>16:00-16:30</b>	Coffee Break
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<b>16:30-18:00</b>	<b>Session 9. Optical Communications and Networks 2</b> <b>Session Chair: Colette McDonagh (DCU)</b>
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<b>16:30-17:00</b>	<b>Whispering gallery modes in optical fiber microresonators for sensing applications</b> Yuliya Semenova <i>Photonics Research Centre, School of Electrical and Electronic Engineering, Dublin Institute of Technology, Kevin St., Dublin 8, Ireland</i>
<b>17:00-17:15</b>	<b>Muti-channel optical fibre hydrogen sensor: a theoretical investigation</b> <u>F. Downes</u> <sup>1,2</sup> and C. M. Taylor <sup>1,2</sup> <sup>1</sup> <i>Department of Environmental Science, Institute of Technology Sligo, Ireland</i> <sup>2</sup> <i>Centre for Environmental Research Innovation and Sustainability (CERIS), Institute of Technology Sligo, Ireland</i>
<b>17:15-17:30</b>	<b>Holographically recorded photonic structures with tunable pressure sensitivity</b> T. Mikulchyk, D. Cody, S. Gul and I. Naydenova <i>Centre for Industrial and Engineering Optics, School of Physics and Clinical &amp; Optometric Sciences, College of Science and Health, Dublin Institute of Technology, Dublin, Ireland</i>

16:30-18:00	Session 10. Photonic Integration and Packaging Session Chair: Frank Peters (UCC-TNI)
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16:30-17:00	<b>Accelerating photonics from research to commercialisation through advanced packaging</b> Peter O'Brien <i>Irish Photonic Integration Centre (IPIC), Tyndall National Institute, Dyke Parade, Cork, T12R5CP, Ireland</i>
17:00-17:15	<b>P-Substrate lasers for vertical integration of INP/ALGAINAS waveguides</b> <u>Shane P. Duggan</u> <sup>1,2*</sup> , Niall P. Kelly <sup>1,2</sup> , Ludovic Caro <sup>1,2</sup> , Mohamad Dernaika <sup>1,3</sup> , Hua Yang <sup>1</sup> , Maryam Shayesteh <sup>1</sup> , Justin K. Alexander <sup>1,2</sup> , Agnieszka Gocalinska <sup>4</sup> , Kevin K. Thomas <sup>4</sup> , Emanuele Pelucchi <sup>4</sup> and Frank H. Peters <sup>1,2</sup> <sup>1</sup> <i>Integrated Photonics Group, Tyndall National Institute, Dyke Parade, Cork, T12R5CP, Ireland</i> , <sup>2</sup> <i>Physics Department, University College Cork, College Road, Cork, T12YN60, Ireland</i> , <sup>3</sup> <i>Electrical and Electronic Engineering Department, University College Cork, College Road, Cork</i> , <sup>4</sup> <i>Epitaxy and Physics of Nanostructures Group, Tyndall National Institute, Dyke Parade, Cork</i>
17:15-17:30	<b>128 x 128 Silicon photonics MEMS switch package</b> <u>H. Y. Hwang</u> <sup>1</sup> , P. Morrissey <sup>1</sup> , J. S. Lee <sup>1</sup> , J. Henriksson <sup>2</sup> , T. J. Seok <sup>3</sup> , M. C. Wu <sup>2</sup> and P. O'Brien <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork T12 F220, Ireland</i> , <sup>2</sup> <i>University of California, Berkeley, CA 94720, USA</i> , <sup>3</sup> <i>Gwangju Institute of Science and Technology, South Korea</i>
17:30-17:45	<b>Multilayer carrier boards for high speed pics</b> <u>M. A. Jezzini</u> <sup>1,2</sup> , P. J. Marracini <sup>1,2</sup> , and F. H. Peters <sup>1,2</sup> <sup>1</sup> <i>Department of Physics, University College Cork, College Road, Cork, Ireland</i> , <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
17:45-18:00	<b>Injection locked semiconductor lasers as optical comb filters</b> <u>Kevin Shortiss</u> <sup>1,2</sup> and F.H. Peters <sup>1,2</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i> , <sup>2</sup> <i>Department of Physics, University College Cork, College Road, Cork, Ireland</i>

18:00-19:30	Poster Session 2
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19:45	Conference Dinner
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## Friday 15<sup>th</sup> September 2017

8:30-9:30	Registration
9:30-10:15	Plenary 3: Harnessing Microlaser Dynamics Kent D. Choquette, University of Illinois, USA
10:15-11:45	Session 11. Photonic Materials Session Chair: Eoin O'Reilly (UCC-Tyndall)
10:15-10:45	<b>The properties and practicality of nanostructured GAN-based light emitting diodes</b> Duncan Allsopp <i>Department of Electronic and Electrical Engineering, University of Bath, BA2 7AY, England</i>
10:45-11:00	<b>Strain-free INP(AS) quantum dots (QDs) – a versatile platform for optoelectronic applications</b> <u>A. Gocalinska</u> <sup>1</sup> , E. Mura <sup>1</sup> , G. Juska <sup>1</sup> , S. T. Moroni <sup>1</sup> , A. Pescaglini <sup>1</sup> , and E. Pelucchi <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
11:00-11:15	<b>Direct band gaps from GeSn alloys: A hybrid functional DFT based analysis</b> <u>Edmond O'Halloran</u> <sup>1,2</sup> , Stefan Schulz <sup>1</sup> , Eoin P. O'Reilly <sup>1,2</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Cork, Ireland</i> <sup>2</sup> <i>Department of Physics, University College Cork, Cork, Ireland</i>
11:15-11:30	<b>Ultrafast experimental analysis of a graphene saturable mirror at 2 <math>\mu</math>m</b> <u>G. Wang</u> <sup>1</sup> , K. Wang <sup>1</sup> , and W. Blau <sup>1</sup> <sup>1</sup> <i>School of Physics and the Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College Dublin, Dublin</i>
11:30-11:45	<b>Self-assemble organic molecular micron-sized tubular structures for active and passive wave-guiding regimes</b> <u>Nebras Alattar</u> <sup>1,2</sup> , Aisling Kerr <sup>1</sup> , Rusul M. Al-Shammari <sup>1,3</sup> , Ronan Dorrepaal <sup>4</sup> , Sivaramakrishnan Ramadurai <sup>5</sup> , Aoife Gowen <sup>4</sup> , Tia Keyes <sup>4</sup> , Brian Vohnsen <sup>1</sup> , Brian J. Rodriguez <sup>1,3</sup> and James H. Rice <sup>1</sup> <sup>1</sup> <i>School of Physics, University College Dublin, Belfield, Dublin 4, Ireland,</i> <sup>2</sup> <i>Laser and Optoelectronic Engineering Department, University of Technology, Baghdad, Iraq,</i> <sup>3</sup> <i>Conway Institute of Biomolecular and Biomedical Research, University College Dublin, Belfield, Dublin 4, Ireland,</i> <sup>4</sup> <i>School Of Biosystems &amp; Food, University College Dublin, Belfield, Dublin 4, Ireland,</i> <sup>5</sup> <i>School Chemical Sciences, Dublin City University, Glasnevin, Dublin 9, Ireland</i>
11:45-12:15	Coffee Break



12:15-13:30

Session 12. Photonic Devices  
Session Chair: John Donegan (TCD)

<b>12:15-12:45</b>	<b>Femtosecond semiconductor lasers</b> Anne Tropper <i>Quantum, Light and Matter Group, Physics and Astronomy, University of Southampton, United Kingdom</i>
<b>12:45-13:00</b>	<b>Power by Light: Misalignment study for direct fibre coupled solar cells</b> <u>J. Garnier</u> <sup>1</sup> , B. Olbrechts <sup>2</sup> , D. O'Mahony <sup>3</sup> , P. Doguet <sup>2</sup> and B. Corbett <sup>1</sup> <sup>1</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland <sup>2</sup> Synergia Medical, Mont-Saint-Guibert, Belgium <sup>3</sup> Cork Institute of Technology, Cork, Ireland
<b>13:00-13:15</b>	<b>Narrow-linewidth 1x2 MMI-Teardrop Laser diodes</b> <u>H. Yang</u> <sup>1</sup> , M.Q Yang <sup>1</sup> , Z.K. Jia <sup>1</sup> , D. C. Hall <sup>3</sup> , F. H. Peters <sup>1,2</sup> <sup>1</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland <sup>2</sup> Department of Physics, University College Cork, College Road, Cork, Ireland <sup>3</sup> Department of Electrical Engineering University of Notre Dame Notre Dame, USA
<b>13:15-13:30</b>	<b>Multiperiod surface grating semiconductor laser</b> G. Jain, M.J. Wallace, and <u>J.F. Donegan</u> <i>School of Physics and CRANN, Trinity College Dublin, Dublin 2, Ireland</i>

Conference Close

## Poster Session 1. Wednesday 13th September 2017

OAK  
SUITE

17:00-18:30

### Imaging

<b>A1</b>	<b>Label free high sensitive imaging of the structure with sub-wavelength spatial resolution</b> <u>Sergey A. Alexandrov</u> <sup>1</sup> , James McGrath <sup>1</sup> , Hrebesh Subhash <sup>1</sup> , Francesca Boccafroschi <sup>2</sup> , Cinzia Giannini <sup>3</sup> and Martin Leahy <sup>1</sup> <sup>1</sup> Tissue Optics & Microcirculation Imaging Group, School of Physics, National University of Ireland, Galway, Ireland, <sup>2</sup> Colgate-Palmolive Global Technology Center, 909 River Road, Piscataway, NJ 08855 USA, <sup>3</sup> Department of Health Sciences, University of Piemonte Orientale "A. Avogadro", 28100 Novara, Italy, <sup>4</sup> Institute of Crystallography, National Research Council, via Amendola 122/O, Bari 70126 Italy
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<b>A2</b>	<b>Using particle swarm optimization for axial apodization</b> <u>T.C. Cognard</u> <sup>1,2</sup> , N. Devaney <sup>1</sup> , and J.C. Dainty <sup>2</sup> <sup>1</sup> <i>Applied Optics, School of Physics, National University of Ireland, Galway, Ireland,</i> <sup>2</sup> <i>Fotonation Ltd., Cliona-Building One Parkmore, Ballybrit, Galway, Ireland</i>
<b>A3</b>	<b>Extending the depth of field in fixed focus lenses using axial colour</b> <u>N. Fitzgerald</u> <sup>1</sup> , A. V. Goncharov <sup>1</sup> , and J. C. Dainty <sup>2</sup> <sup>1</sup> <i>Applied Optics Group, School of Physics, National University of Ireland, Galway, Ireland.</i> <sup>2</sup> <i>FotoNation Ltd., Parkmore East Business Park, Ballybrit, Galway, Ireland</i>
<b>A4</b>	<b>Transform composition for digital propagation algorithms</b> <u>J. J. Healy</u> <sup>1</sup> , L. Zhao <sup>2</sup> <sup>1</sup> <i>School of Electrical &amp; Electronic Engineering, University College Dublin, Belfield, D4, Ireland,</i> <sup>2</sup> <i>Central China Normal University, Wuhan, China</i>
<b>A5</b>	<b>Security of double-random phase encoding with the gyrator transform</b> <u>Y. Shi</u> <sup>2</sup> , I. Muniraj <sup>1</sup> , J. J. Healy <sup>1</sup> <sup>1</sup> <i>School of Electrical &amp; Electronic Engineering, University College Dublin, Belfield, D4, Ireland,</i> <sup>2</sup> <i>Beijing Dublin International College, Chaoyang District, Beijing, China</i>
<b>A6</b>	<b>Wavefront sensing for space active optics</b> <u>Kim Heary</u> <sup>1</sup> , and Nicholas Devaney <sup>1</sup> <sup>1</sup> <i>Applied Optics Group, School Of Physics, National University of Ireland, Galway, Ireland</i>
<b>A7</b>	<b>Gold nanorod arrays for localised surface plasmon imaging</b> <u>H. Johnston</u> <sup>1</sup> , A. Murphy <sup>1</sup> , B. Hill <sup>1</sup> , A. Cochran <sup>2</sup> and R. Pollard <sup>1</sup> <sup>1</sup> <i>Department of Mathematics and Physics, Queen's University Belfast, University Road, Belfast, Northern Ireland,</i> <sup>2</sup> <i>School of Engineering, University of Glasgow, Glasgow, Scotland</i>
<b>A8</b>	<b>Simulation and design of an active optics system for space telescopes</b> <u>F. Kenny</u> <sup>1</sup> , M. Goy <sup>2</sup> , A. Goncharov <sup>1</sup> , C. Reinlein <sup>2</sup> and N. Devaney <sup>1</sup> <sup>1</sup> <i>Applied Optics, School of Physics, NUI Galway, University Road, Galway, Ireland,</i> <sup>2</sup> <i>Fraunhofer Institute for Applied Optics and Precision Engineering IOF Albert-Einstein-Strasse 7, 07745</i>
<b>A9</b>	<b>Smart art display projection system</b> <u>J. Pablo La Torre</u> <sup>1</sup> , Nathan Mayes <sup>1</sup> , and Nabeel A. Riza <sup>1</sup> <sup>1</sup> <i>School of Engineering, University College Cork, College Road, Cork, Ireland</i>
<b>A10</b>	<b>Investigation of estimation techniques applied to multispectral photon counting integral imaging reconstruction</b> Hilary Greene, <u>Inbarasan Muniraj</u> , John J Healy and John T Sheridan* <i>School of Electrical Electronic Engineering, University College Dublin, Belfield, Ireland</i>
<b>A11</b>	<b>Signal processing for simultaneous en-face imaging of multiple layers with multiple reference optical coherence tomography</b> <u>K. Neuhaus</u> <sup>1</sup> , S. Alexandrov <sup>1</sup> , S. O'Gorman <sup>1</sup> , P.M. McNamara <sup>1,2</sup> , J. Hogan <sup>2</sup> , C. Wilson <sup>2</sup> , and M.J. Leahy <sup>1,3</sup> <sup>1</sup> <i>Tissue Optics and Microcirculation Imaging facility, National University of Ireland, Galway,</i> <sup>2</sup> <i>Compact Imaging, Inc. 897 Independence Ave., Suite 5B, Mountain View, CA 94043 USA,</i> <sup>3</sup> <i>Royal College of Surgeons (RCSI), Dublin, Ireland</i>
<b>A12</b>	<b>Linear and non-linear optical imaging of cancer Cells with silicon nanoparticles</b> <u>L.A. Osminkina</u> <sup>1</sup> , E Tolstik <sup>2</sup> , S.N. Shevchenko <sup>1</sup> , D. Akimov <sup>2</sup> , M. B. Gongalsky <sup>1</sup> , R. Heintzmann <sup>2</sup> , C. Matthäus <sup>2</sup> , J. Popp <sup>2</sup> and V. Sivakov <sup>2</sup>

	<sup>1</sup> <i>Department of Physics, Lomonosov Moscow State University, Moscow, Russia</i> <sup>2</sup> <i>Leibniz Institute of Photonic Technology, Jena 07745, Germany</i>
<b>A13</b>	<b>Vesicle tracking with digital holographic microscopy and image analyses</b> <u>Tomi Pitkääho</u> <sup>1</sup> , Aki Manninen <sup>2</sup> , and Thomas J. Naughton <sup>1</sup> <sup>1</sup> <i>Department of Computer Science, Maynooth University, Maynooth, Co. Kildare, Ireland,</i> <sup>2</sup> <i>Faculty of Biochemistry and Molecular Medicine, University of Oulu, Finland</i>
<b>A14</b>	<b>Digital holographic microscopy sensor network and image analyses in remote potable water monitoring</b> <u>Tomi Pitkääho</u> <sup>1,2</sup> , Ville Pitkääkangas <sup>2</sup> , Mikko Niemelä <sup>2</sup> , Sudheesh K. Rajput <sup>3,4</sup> , Naveen K. Nishchal <sup>3</sup> , and Thomas J. Naughton <sup>1</sup> <sup>1</sup> <i>Department of Computer Science, Maynooth University, Maynooth, Co. Kildare, Ireland,</i> <sup>2</sup> <i>University of Oulu, Oulu Southern Institute, Pajatie 5, 85500 Nivala, Finland,</i> <sup>3</sup> <i>Department of Physics, Indian Institute of Technology, Patna, Bihta, Patna-801 103, India,</i> <sup>4</sup> <i>Department of Systems Science, Kobe University, Rokkodai 1-1 Nada, Kobe 657-8501, Japan</i>
<b>A15</b>	<b>Cellular auto fluorescence imaging on Leica confocal system using spectrally programmable integrating sphere light source and low noise CMOS sensor</b> <u>Aziz ul Rehman</u> <sup>1, 2, 3</sup> and Ewa M. Goldys <sup>1,2</sup> <sup>1</sup> <i>Department of Physics, Department of Physics and Astronomy, Macquarie University, Sydney, 2109, NSW Australia,</i> <sup>2</sup> <i>ARC Centre of Excellence in Nanoscale Biophotonics, Macquarie University, Sydney, 2109, NSW, Australia,</i> <sup>3</sup> <i>Biophotonics Laboratory, National Institute of Lasers and Optronics, Lehtrar Road, Islamabad 45650, Pakistan</i>
<b>A16</b>	<b>Vacuum-UV two-photon double ionization of Kr</b> <u>Lazaros Varvarezos</u> <sup>*</sup> 1, John T Costello <sup>*</sup> , Stefan Duesterer <sup>†</sup> , Cedric Bomme <sup>†</sup> , Benjamin Erk <sup>†</sup> , Gregor Hartmann <sup>†^</sup> , Bastian Manschwetus <sup>†</sup> , Dimitrios Rompotis <sup>†</sup> , Evgeny Savelyev <sup>†</sup> , Alberto De Fanis <sup>‡</sup> , Tommaso Mazza <sup>‡</sup> , Michael Meyer <sup>‡</sup> , Nikolay Kabachnik <sup>§</sup> , Per Johnsson <sup>¶</sup> , Andrey Kazansky & and Mossy Kelly <sup>#</sup> <sup>*</sup> <i>Dublin City University, School of Physical Sciences and NCPST, Glasnevin Campus, Dublin 9, Ireland</i> <sup>†</sup> <i>Deutsches Elektronen-Synchrotron (DESY), Notkestrasse 85, D-22603 Hamburg, Germany,</i> <sup>‡</sup> <i>European XFEL GmbH, Albert-Einstein-Ring 19, D-22761 Hamburg, Germany,</i> <sup>§</sup> <i>Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Moscow 119991, Russia,</i> <sup>¶</sup> <i>Lund University, PO Box 118, SE-221 00 Lund, Sweden,</i> & <i>Departamento de Fisica de Materiales, University of the Basque Country, E-20018 San Sebastian/Donostia, Spain,</i> <sup>#</sup> <i>School of Mathematics and Physical Sciences, University of Hull, Hull HU6 7RX, United Kingdom,</i> <sup>^</sup> <i>Institute of Physics, University of Kassel, Heinrich-Plett-Strasse 40, 34132 Kassel, Germany</i>
<b>A17</b>	<b>Non-invasive imaging of carotid artery using co-registered photoacoustic/ultrasound</b> <u>H. Zafar</u> <sup>1,2</sup> , M. Leahy <sup>3</sup> , N. Johnson <sup>4</sup> and F. Sharif <sup>1,2,4,5,6</sup> <sup>1</sup> <i>Cardiovascular Research Centre, School of Medicine, National University of Ireland (NUI) Galway, Ireland,</i> <sup>2</sup> <i>Lambe Institute for Translational Research, NUI Galway, Ireland,</i> <sup>3</sup> <i>Tissue Optics &amp; Microcirculation Imaging Group, School of Physics, NUI Galway, Ireland,</i> <sup>4</sup> <i>National Institute for Preventive Cardiology, Croí Heart &amp; Stroke Charity, Ireland,</i> <sup>5</sup> <i>Department of Cardiology, University Hospital Galway, Ireland.</i> <sup>6</sup> <i>BioInnovate Ireland.</i>
<b>A18</b>	<b>Fully automated fractional flow reserve calculation from intracoronary optical coherence tomography imaging</b> Asma Shahzad <sup>1</sup> , <u>Haroon Zafar</u> <sup>1,2</sup> , Martin Leahy <sup>3</sup> , Faisal Sharif <sup>1,2,4,5</sup> <sup>1</sup> <i>Cardiovascular Research Centre, School of Medicine, National University of Ireland (NUI) Galway, Ireland,</i> <sup>2</sup> <i>Lambe Institute for Translational Research, NUI Galway,</i>

	<i>Ireland, <sup>3</sup>Tissue Optics &amp; Microcirculation Imaging Group, School of Physics, NUI Galway, Ireland, <sup>4</sup>Department of Cardiology, University Hospital Galway, Ireland. <sup>5</sup>BioInnovate Ireland.</i>
<b>A19</b>	<b>Implementing the counter operating mode in optical image encryption</b> <u>Lingfei Zhang</u> and Thomas J. Naughton <i>Dept. of Computer Science, Maynooth University, Ireland</i>

### Biophotonics and Optical Sensing

<b>A20</b>	<b>Algorithm for optimal de-noising of Raman spectra</b> S.J Barton <sup>1</sup> , T.Ward <sup>1</sup> , and B.M. Hennelly <sup>1</sup> <i><sup>1</sup>Department of Electronic Engineering, Maynooth University, Maynooth, Kildare, Ireland</i>
<b>A21</b>	<b>The evolution of high speed phase sensitive MROCT</b> <u>S. O'Gorman</u> <sup>1</sup> , K. Neuhaus <sup>1</sup> , S. Alexandrov <sup>1</sup> , P.M. McNamara <sup>1,2</sup> , J. Hogan <sup>2</sup> , C. Wilson <sup>2</sup> , and M.J. Leahy <sup>1,3</sup> <i><sup>1</sup>Tissue Optics and Microcirculation Imaging facility, National University of Ireland, Galway, <sup>2</sup>Compact Imaging, Inc. 897 Independence Ave., Suite 5B, Mountain View, CA 94043 USA, <sup>3</sup>Royal College of Surgeons (RCSI), Dublin, Ireland</i>
<b>A22</b>	<b>Deep tissue imaging with acousto-optical tomography and spectral hole burning: a theoretical study</b> <u>Jacqueline Gunther</u> <sup>a</sup> , Stefan Andersson-Engels <sup>a,b</sup> <i><sup>a</sup>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland T12 R5CP, <sup>b</sup>Dept. of Physics, University College Cork, Cork, Ireland</i>
<b>A23</b>	<b>Automated Raman cytopathology</b> X. Fan, Z.Y. Tang, S. Y. Wu, N. Dugan and <u>B.M. Hennelly</u> <i>Department of Electronic Engineering, Maynooth University, Maynooth, Kildare, Ireland</i>
<b>A24</b>	<b>The effects of optogenetic manipulation of glutamatergic neurons in the rat anterior cingulate cortex on locomotor activity and nociceptive behaviour</b> <u>Sarah Jarrin</u> <sup>1,3,4</sup> , Abhay Pandit <sup>3,4</sup> , Michelle Roche <sup>2,3,4</sup> , David P. Finn <sup>1,3,4</sup> <i><sup>1</sup>Pharmacology and Therapeutics, School of Medicine, <sup>2</sup>Physiology, School of Medicine, <sup>3</sup>NCBES Galway Neuroscience Centre and Centre for Pain Research <sup>4</sup>Centre for Research in Medical Devices (CÚRAM), National University of Ireland Galway</i>
<b>A25</b>	<b>Wavenumber calibration for Raman spectroscopy using a temperature stable plastic standard</b> <u>D.Y Liu</u> , T. Ward, and B.M. Hennelly <i>Department of Electronic Engineering, Maynooth University, Maynooth, Kildare, Ireland</i>
<b>A26</b>	<b>Optical detection of protein binding interactions with plasmonic gold nanorods</b> <u>E.L. Marlow</u> <sup>1</sup> , M.K. Greene <sup>2</sup> , B. Hill <sup>3</sup> , A. Murphy <sup>3</sup> , C. Scott <sup>2</sup> and R. Pollard <sup>1,3</sup> <i><sup>1</sup>School of Mathematics and Physics, Queen's University Belfast, Antrim, Ireland, <sup>2</sup>School of Pharmacy, Queen's University Belfast, Antrim, Ireland, <sup>3</sup>Causeway Sensors, Belfast, Antrim, Ireland</i>
<b>A27</b>	<b>Optimization of classification of breast cancer antigenicity with fast-ftir imaging</b> <u>Sebastian Nagorski</u> <sup>2*</sup> , Naomi Jackson <sup>2,3</sup> , and Aidan D. Meade <sup>1,2</sup> <i><sup>1</sup>School of Physics, Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland,</i>

	<sup>2</sup> <i>Radiation and Environmental Science Centre, Focas Research Institute, Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland, <sup>3</sup>School of Biological Sciences, Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland</i>
<b>A28</b>	<b>Optical spectroscopy and imaging for gastrointestinal interventions</b> <u>M.S. Nogueira</u> <sup>1,2</sup> , E. Moriyama <sup>2</sup> , M. O'Riordain <sup>3</sup> and S. Andersson-Engels <sup>1,2</sup> <sup>1</sup> <i>Department of Physics, University College Cork, College Road, Cork, Ireland</i> <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i> <sup>3</sup> <i>Mercy University Hospital, Grenville Place, Cork, Ireland</i>
<b>A29</b>	<b>Differential detection of photoreceptor tilts using a quadrant pupil</b> S. Qaysi, D. Valente, and B. Vohnsen <i>Advanced Optical Imaging Group, School of Physics, University College Dublin, Ireland</i>
<b>A30</b>	<b>Wave optical approach to deriving forces in an optical tweezers</b> Yu Qin <sup>1</sup> , J. J. Healy <sup>1</sup> , and B.M. Hennelly <sup>1</sup> <sup>1</sup> <i>Department of Electronic Engineering, Maynooth University, Maynooth, Kildare, Ireland</i>
<b>A31</b>	<b>SERS-fluorescence poly-functional microspheres for multiplexed immunoassay</b> <u>D. Rice</u> <sup>1,2,3</sup> , M. Gleeson <sup>1,2</sup> , K. O'Dwyer <sup>1,2</sup> , R. Mouras <sup>1,2</sup> , N. Liu <sup>1,2</sup> , T. Soulimane <sup>1,3</sup> , S. A. M. Tofail <sup>1,2</sup> , and C Silien <sup>1,2</sup> <sup>1</sup> <i>Bernal Institute, University of Limerick, Limerick, Ireland</i> <sup>2</sup> <i>Department of Physics, University of Limerick, Limerick, Ireland</i> <sup>3</sup> <i>Department of Chemical Sciences, University of Limerick, Limerick, Ireland</i>
<b>A32</b>	<b>Detection of silicon nanoparticles and influenza virus interaction via dynamic light scattering</b> <u>S.N. Shevchenko</u> <sup>1</sup> , A.A. Manykin <sup>2</sup> , V.N. Nikiforov <sup>1</sup> , A.B. Bychenko <sup>3</sup> , E.A. Kropotkina <sup>3</sup> , A.S. Gambaryan <sup>3</sup> and L.A.Osminkina <sup>1</sup> <sup>1</sup> <i>Lomonosov Moscow State University, Department Of Physics, Moscow, Russia</i> <sup>2</sup> <i>D.I. Ivanovskii Institute of Virology, Moscow, Russia</i> <sup>3</sup> <i>Chumakov Institute of Poliomyelitis and Viral Encephalitides, Moscow, Russia</i>
<b>A33</b>	<b>Quantifying the glucose, urea and lactic acid concentration in mixture by confocal Raman microscopy and partial least squares</b> <u>Z.Y.Tang</u> <sup>1</sup> , S. Barton <sup>1</sup> , T.Ward <sup>1</sup> , and B.M. Hennelly <sup>1</sup> <sup>1</sup> <i>Department of Electronic Engineering, Maynooth University, Maynooth, Kildare, Ireland</i>
<b>A34</b>	<b>Fabry-pérot based refractive index optical fibre sensor for monitoring hypoxic state of the tumor</b> <u>Charusluk Viphavakit</u> <sup>1</sup> , Sinead O'Keeffe <sup>1</sup> , Stefan Andersson-Engels <sup>2</sup> , and Elfed Lewis <sup>1</sup> <sup>1</sup> <i>Optical Fibre Sensors Research Centre, University of Limerick, Limerick, Ireland,</i> <sup>2</sup> <i>Irish Photonic Integration Centre, Tyndall National Institute, Cork, Ireland</i>
<b>A35</b>	<b>Comparison of uncoated and coated gold nanoparticles for photothermal oct imaging</b> <u>Cerine Lal</u> <sup>1</sup> , Vijay Raghavan <sup>1</sup> , Kai Neuhaus <sup>1</sup> and Martin J Leahy <sup>2</sup> <sup>1</sup> <i>Tissue Optics and Microcirculation Imaging facility, National University of Ireland, Galway</i> <sup>2</sup> <i>Royal College of Surgeons (RCSI), Dublin, Ireland</i>
<b>A36</b>	<b>Label-free detecting of living and dead bacteria by raman spectroscopy on a ferroelectric template</b> Rusul M. Al-Shammari <sup>1,2</sup> , Ahmed Kassem <sup>3</sup> , <u>Nebras Alattar</u> <sup>1,4</sup> , Michele Manzo <sup>5</sup> , Katia Gallo <sup>5</sup> , Paul Whyte <sup>3</sup> , Brian J. Rodriguez <sup>1,2</sup> and James H. Rice <sup>1</sup> <sup>1</sup> <i>School of Physics, University College Dublin, Belfield, Dublin 4, Ireland.</i>

	<sup>2</sup> Conway Institute of Biomolecular and Biomedical Research, University College Dublin, Belfield, Dublin 4, Ireland. <sup>3</sup> School of Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland. <sup>4</sup> Laser and Optoelectronic Engineering Department, University of Technology, Baghdad, Iraq. <sup>5</sup> Department of Applied Physics, KTH – Royal Institute of Technology, 106 91 Stockholm, Sweden.
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### Laser Materials and Laser-Plasma Interactions

<b>A37</b>	<b>Towards the formation of stagnation layers in air</b> <u>S.J. Davitt</u> <sup>1</sup> , N. Walsh <sup>1</sup> , T.J. Kelly <sup>2</sup> and J.T. Costello <sup>1</sup> <sup>1</sup> <i>School of Physical Sciences and National Centre for Plasma Science and Technology, Dublin City University, Dublin 9, Ireland,</i> <sup>2</sup> <i>School of Mathematics and Physical Sciences, University of Hull, Hull, UK HU67RX</i>
<b>A38</b>	<b>Stagnation Layer Formation at the Centre of Annular Laser Produced Plasmas</b> B. Delaney, T.J. Kelly, E.T. Kennedy, J.T. Costello <i>School of Physical Science and National Centre for Plasma Science and Technology, Dublin City University, Glasnevin, Dublin 9, Ireland.</i>
<b>A39</b>	<b>Ion Beams from Colliding Laser Produced Plasmas</b> <u>C. B. Doherty</u> <sup>1</sup> , T. J. Kelly <sup>2</sup> and J.T. Costello <sup>1</sup> <sup>1</sup> <i>School of Physical Sciences and National Centre for Plasma Science and Technology, DCU, Dublin 9, Ireland,</i> <sup>2</sup> <i>Department of Physics and Mathematics, University of Hull, Hull, HU6 7RX, UK</i>
<b>A40</b>	<b>Laser processing of PMMA to enable the fabrication of PDMS microfluidics</b> <u>E. Gallagher</u> , G.M. O'Connor <i>National Centre for Laser Applications, National University of Ireland, Galway</i>
<b>A41</b>	<b>Optical emission studies on the formation of AIO molecules in a laser produced plasma</b> N. Walsh <sup>1</sup> , J.T. Costello <sup>1</sup> , and T.J. Kelly <sup>2</sup> <sup>1</sup> <i>School of Physical Sciences, Dublin City University, Dublin, Ireland,</i> <sup>2</sup> <i>School of Mathematics and Physical Sciences, University of Hull, Hull, UK HU67RX</i>
<b>A42</b>	<b>Mechanically Inspired Scribing of thin Brittle Materials</b> <u>Jean Loup Trollat</u> , Adam Collins, and G.M. O'Connor <i>National Centre for Laser Applications, School of Physics, National University of Ireland Galway, Ireland</i>

### Quantum Optics and Quantum Technologies

<b>A43</b>	<b>Rotational motion of trapped microspheres optical nanofibres</b> <u>C.L. Esporlas</u> , A. Maimaiti, V.G. Truong and S. Nic Chormaic <i>Light-Matter Interactions Unit, Okinawa Institute of Science and Technology Graduate University, Onna, Okinawa 904-0495, Japan</i>
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<b>A44</b>	<b>Stacked highly symmetric site-controlled quantum dots</b> <u>S.T. Moroni</u> <sup>1</sup> , T. H. Chung <sup>1</sup> , G. Juska <sup>1</sup> , A. Gocalinska <sup>1</sup> and E. Pelucchi <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>A45</b>	<b>Interaction between cold atoms and selectively excited higher order modes of an ultrathin optical fiber</b> <u>Thomas Nieddu</u> , Jinjin Du, Síle Nic Chormaic <i>Okinawa Institute of Science and Technology Graduate School, 1919-1 Tancha, Onna-son, 904-0495 Okinawa, Japan</i>
<b>A46</b>	<b>Cold rydberg atom formation near an optical nanofibre</b> <u>Krishnapriya Subramonian Rajasree</u> <sup>1</sup> , Tridib Ray <sup>1</sup> , Maria Langbecker <sup>2</sup> , Kristoffer Karlsson <sup>1</sup> and Síle Nic Chormaic <sup>1</sup> <sup>1</sup> <i>Okinawa Institute of Science and Technology Graduate University, Okinawa, Japan.</i> <sup>2</sup> <i>Johannes Gutenberg-University of Mainz, Germany</i>
<b>A47</b>	<b>Manipulation of ising anyons in a topological superconductor</b> <u>John Brennan</u> and Jiri Vala <i>Department of Theoretical Physics, National University of Ireland, Maynooth</i>
<b>A48</b>	<b>Hopf algebra gauge theories on a ribbon graph</b> <u>Aaron Conlon</u> , Domenico Pellegrino and Joost Slingerland <i>Department of Theoretical Physics, National University of Ireland, Maynooth</i>
<b>A49</b>	<b>Dynamical evolution of majorana zero modes</b> <u>Domenico Pellegrino</u> , Aaron Conlon, Joost Slingerland and Graham Kells <i>Department of Theoretical Physics, National University of Ireland, Maynooth</i>

### Nanophotonics and Plasmonics

<b>A50</b>	<b>Metal enhanced fluorescence from conical mounted gold diffraction gratings</b> <u>D. Byrne</u> and C. McDonagh <i>School of Physical Sciences, Dublin City University, Glasnevin, Dublin, Ireland</i>
<b>A51</b>	<b>EBL fabricated plasmonic arrays for enhanced non-radiative energy transfer from a quantum well to a quantum dot layer</b> <u>A. Garcia</u> <sup>1</sup> , L.J. Higgins <sup>1</sup> , J.J. Gough <sup>1</sup> , G.P. Murphy <sup>1</sup> , V.D. Karanikolas, C.A. Marocico, V.Z. Zubialeovich <sup>2</sup> , P.J. Parbrook <sup>2</sup> , M. Akhter <sup>2</sup> , V.D. Dinh <sup>2</sup> , B. Corbett <sup>2</sup> and A.L. Bradley <sup>1</sup> <sup>1</sup> <i>School of Physics and CRANN, Trinity College Dublin, Dublin 2, Ireland,</i> <sup>2</sup> <i>Tyndall National Institute and School of Engineering, University College Cork, Lee Maltings, Prospect Row, Cork, Ireland</i>
<b>A52</b>	<b>Self-heating effect in plasmonic core/shell nanostructures</b> <u>A. Muigahid</u> <sup>1</sup> and F. Huang <sup>2</sup> <sup>1</sup> <i>EPSRC. CDT. Photonic Integration and Advanced Data Storage, Queens University Belfast &amp; University of Glasgow, UK,</i> <sup>2</sup> <i>Centre for Nanostructured Media, School of Mathematics and Physics, Queens University Belfast. UK</i>
<b>A53</b>	<b>Plasmonic coupling of nanoparticles in the sub-nanometer regime</b> <u>M. Katzen</u> <sup>1</sup> , M. Velicky <sup>1</sup> , S. Drakeley <sup>1</sup> , W. R. Hendren <sup>1</sup> , Q. Cai <sup>2</sup> , Y. Chen <sup>2</sup> , L.H. Li <sup>2</sup> , G.R. Yi <sup>3</sup> , F. Huang <sup>1</sup>

	<p><sup>1</sup>Centre for Nanostructured Media, School of Mathematics and Physics, Queen's University Belfast, Belfast, BT7 1NN, U.K, <sup>2</sup>Institute for Frontier Materials, Deakin University, Waurn Ponds, Victoria, Australia, <sup>3</sup>School of Chemical Engineering, Sungkyunkwan University, Suwon, Republic of Korea</p>
<b>A54</b>	<p><b>Orbital angular momentum of elliptic beams diffracted by elliptic spiral phase plates</b>  <u>V.V. Kotlyar</u><sup>1,2</sup>, A.A Kovalev<sup>1,2</sup>, and A.P. Porfirev<sup>1,2</sup>  <sup>1</sup>Image Processing Systems Institute of the RAS – Branch of FSRC "Crystallography &amp; Photonics" of the RAS, Samara, Russia, <sup>2</sup>Samara National Research University, Samara, Russia</p>
<b>A55</b>	<p><b>Short wavelength tail effects in multiphoton induced luminescence from ZNO using sub-10 fs Ti:SA pulses</b>  <u>E. McGlynn</u><sup>1</sup>, J. Hytti<sup>2</sup>, R. Grunwald<sup>2</sup>, M. Perestjuk<sup>2</sup>, F. Güell<sup>3</sup>, C. Gray<sup>1</sup>, and G. Steinmeyer<sup>2</sup>  <sup>1</sup>School of Physical Sciences, National Centre for Plasma Science and Technology, Dublin City University, Glasnevin, Dublin 9, Ireland, <sup>2</sup>Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Max-Born-Straße 2a, 12489 Berlin, Germany  <sup>3</sup>Departament d'Electrònica, Universitat de Barcelona, C/Martí i Franquès 1, E-08028 Barcelona, Catalunya, Spain</p>
<b>A56</b>	<p><b>Epsilon-near-zero metamaterials</b>  <u>S.A.O'Brien</u><sup>1</sup>, F. Bello<sup>1</sup>, D. McCloskey<sup>1</sup>, and J.F. Donegan<sup>1</sup>  <sup>1</sup>School of Physics, CRANN and AMBER, Trinity College Dublin, Dublin 2, Ireland</p>
<b>A57</b>	<p><b>Waveguided enhancement in Au-mica trenches using a bowtie antenna</b>  <u>Isabel A. Pita</u><sup>1,2</sup>, Mahendar Kumbham<sup>1,2</sup>, Michael Schmidt<sup>3</sup>, Matthew Gleeson<sup>1,2</sup>, Kevin M. Ryan<sup>2</sup>, Christophe Silien<sup>1,2</sup> and Ning Liu<sup>1,2</sup>  <sup>1</sup>Department of Physics and Bernal Institute, University of Limerick, Limerick, Ireland  <sup>2</sup>Department of Chemical Science and Bernal Institute, University of Limerick, Limerick, Ireland, <sup>3</sup>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</p>
<b>A58</b>	<p><b>Slow light kagome lattice based photonic crystal waveguides</b>  <u>S. A. Schulz</u><sup>1,2,3</sup>, J. Upham<sup>3</sup>, R. W. Boyd<sup>3</sup> and L. O'Faolain<sup>1,2</sup>  <sup>1</sup>Centre for Advanced Photonics and Process Analysis, Cork Institute of Technology, Bishopstown, Cork, Ireland, <sup>2</sup>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland, <sup>3</sup>Department of Physics, University of Ottawa, Templeton Street, Ottawa, Canada</p>
<b>A59</b>	<p><b>Tight focusing of cylindrical vector beams generated by subwavelength gratings</b>  <u>S.S. Stafeev</u><sup>1,2</sup>, A.G. Nalimov<sup>1,2</sup>, M.V. Kotlyar<sup>2</sup>, D. Gibson<sup>3</sup>, S. Song<sup>3</sup>, L. O'Faolain<sup>4,5,6</sup>, and V.V. Kotlyar<sup>1,2</sup>  <sup>1</sup>Image Processing Systems Institute – Branch of the Federal Scientific Research Centre "Crystallography and Photonics" of the Russian Academy of Sciences, Samara, Russia, <sup>2</sup>Samara National Research University, Samara, Russia, <sup>3</sup>SUPA, Institute of Thin Films, Sensors &amp; Imaging, University of the West of Scotland, UK, <sup>4</sup>SUPA, School of Physics and Astronomy of the University of St. Andrews, St. Andrews, UK, <sup>5</sup>Tyndall National Institute, Lee Maltings Complex, Dyke Parade, Cork, Ireland, <sup>6</sup>Centre for Advanced Photonics and Process Analysis, Cork Institute of Technology, Cork, Ireland</p>



<b>A60</b>	<b>Fabrication and optical properties of periodic Ag nanopore and nanoparticle arrays with controlled shape and size over macroscopic length scales</b> Colm T. Mallon, Houda Gartite, <u>Kho K. Wei</u> , Robert J. Foster, and Tia E. Keyes <i>Department of Chemical Sciences, Dublin City University, Dublin 9, Ireland</i>
<b>A61</b>	<b>Dynamic structural colour using vanadium dioxide thin films</b> <u>K. Wilson</u> and A. L. Bradley <i>School of Physics, Trinity College Dublin, Dublin 2, Ireland</i>

### Photonic Integration and Packaging

<b>A62</b>	<b>A facetless gain-switched laser for optical comb generation</b> <u>J. K. Alexander</u> <sup>1,2</sup> , P. E. Morrissey <sup>2</sup> , M. Dernaika <sup>2,3</sup> , L. Caro <sup>1,2</sup> , N. P. Kelly <sup>1,2</sup> , and F. H. Peters <sup>1,2</sup> <sup>1</sup> <i>Department of Physics, University College Cork, Cork, Ireland</i> <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i> <sup>3</sup> <i>Electrical and Electronic Engineering Department, University College Cork, Cork, Ireland</i>
<b>A63</b>	<b>Index perturbation for high index contrast ridge waveguide laser</b> <u>Mohamad Dernaika</u> <sup>1,3</sup> , Niall P. Kelly <sup>2,3</sup> , Ludovic Caro <sup>2,3</sup> and Frank H. Peters <sup>2,3</sup> <sup>1</sup> <i>Electrical and Electronic Engineering Department, University College Cork, Ireland</i> , <sup>2</sup> <i>Department of Physics, University College Cork, College Road, Cork, Ireland</i> , <sup>3</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>A64</b>	<b>Modelling non identical mutually coupled semiconductor lasers in photonic integrated circuits</b> <u>F.M Dubois</u> <sup>1,2</sup> , A. Perott <sup>1,2</sup> , M. Seifika <sup>1,2</sup> and F.H Peters <sup>1,2</sup> <sup>1</sup> <i>Department of Physics, University College Cork, College Road, Cork, Ireland</i> <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>A65</b>	<b>Pluggable multi-channel single-mode fibre-to-pic coupling for consumable photonic applications</b> <u>K. Gradkowski</u> <sup>1</sup> , C. Scarcella <sup>2</sup> , L. Carroll <sup>1</sup> , J.-S. Lee <sup>1</sup> , M. Duperron <sup>1</sup> , D. Fowler <sup>3</sup> , and P. O'Brien <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i> <sup>2</sup> <i>CERN, Geneva, Switzerland</i> <sup>3</sup> <i>CEA-Leti, 68B Avenue de Martyrs, Grenoble, France</i>
<b>A66</b>	<b>Packaging of a non-volatile, low-power optical access network switch</b> <u>K. Gradkowski</u> <sup>1</sup> , L. Carroll <sup>1</sup> , S. Collins <sup>1</sup> , M. Rensing <sup>1</sup> , J.-S. Lee <sup>1</sup> , N. Nudds <sup>3</sup> , and P. O'Brien <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>

<b>A67</b>	<b>Injection locking mutually coupled lasers in a photonic integrated circuit</b> <u>A.H. Perrott</u> <sup>1,2</sup> , M. Dernaika <sup>1,3</sup> , L. Caro <sup>1,2</sup> , N.P. Kelly <sup>1,2</sup> , P.E. Morrissey <sup>4</sup> and F.H. Peters <sup>1,2</sup> <sup>1</sup> Depart. of Physics, University College Cork, College Road, Cork, Ireland <sup>2</sup> Integrated Photonics Group, Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland, <sup>3</sup> Electrical & Electronic Engineering Depart., University College Cork, College Road, Cork, Ireland, <sup>4</sup> Packaging Group, Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland
<b>A68</b>	<b>Two mutually delay-coupled semiconductor lasers: multistability and bifurcation analysis</b> <u>M. Seifika</u> <sup>1,2</sup> , A. Amann <sup>1,3</sup> , and F. H. Peters <sup>1,2</sup> <sup>1</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland, <sup>2</sup> Department of Physics, University College Cork, College Road, Cork, Ireland, <sup>3</sup> School of Mathematical Science, University College Cork, College Road, Cork, Ireland
<b>A69</b>	<b>Data transmission at 1310 nm using silicon photonic integrated circuit</b> <u>R. N. Sheehan</u> <sup>1</sup> , A. Gallet <sup>2</sup> , I. Ghorbel <sup>2</sup> , C. Eason <sup>1</sup> , L. Carroll <sup>1</sup> , P. O'Brien <sup>1</sup> , A. Shen <sup>2</sup> , G. H. Duan <sup>2</sup> and F. C. G. Gunning <sup>1</sup> <sup>1</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland, <sup>2</sup> III-V Lab, A Joint Lab of Nokia, Thales and CEA, Palaiseau, France
<b>A70</b>	<b>Effect of comb spacing and slave laser gain on filtering properties of injection locked lasers</b> <u>K.J. Shortiss</u> <sup>1,2</sup> , M. Shayesteh <sup>1,2</sup> , A.H. Perrott <sup>1,2</sup> , W. Cotter <sup>1</sup> and F.H. Peters <sup>1,2</sup> <sup>1</sup> Department of Physics, University College Cork, College Road, Cork, Ireland <sup>2</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland
<b>A71</b>	<b>A multi-cavity facet-less laser for single-mode operation and monolithic integration</b> <u>L. Caro</u> <sup>1,2</sup> , M. Dernaika <sup>1,3</sup> , N.P. Kelly <sup>1,2</sup> , and F.H. Peters <sup>1,2</sup> <sup>1</sup> Department of Physics, University College Cork, College Road, Cork, Ireland <sup>2</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland <sup>3</sup> Department of Electrical and Electronic Engineering, University College Cork, College Road, Cork, Ireland

## Poster Session 2. Thursday 14<sup>th</sup> September 2017

OAK  
SUITE

17:00-18:30

### Optical Communications and Networks

<b>B1</b>	<b>Zeolite-composite photonic structures for gas Sensing applications</b> <u>D. Cody</u> <sup>1</sup> , H. Awala, <sup>2</sup> S. Mintova <sup>2</sup> and I. Naydenova <sup>1*</sup> <sup>1</sup> Centre for Industrial and Engineering Optics, School of Physics and Clinical and Optometric Sciences, Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland. <sup>2</sup> Laboratoire Catalyse & Spectrochimie, ENSICAEN, Université de Caen Basse-Normandie, CNRS, 6 boulevard du Maréchal Juin, 14050 Caen, Cedex, France
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<b>B2</b>	<b>Agile Optical Datacenter Architecture</b> <u>Dinh Danh Le</u> <sup>1</sup> , Conor McArdle <sup>1</sup> and Liam P. Barry <sup>1</sup> <i>School of Electronic Engineering, Faculty of Engineering and Computing, Dublin City University, Dublin 9, Ireland</i>
<b>B3</b>	<b>Wafer scale testing of silicon photonic devices</b> <u>G. C.R.Devarapu</u> <sup>1,2,3</sup> , S.C.Iadanza <sup>1,2</sup> and Liam O’Faolain <sup>1,2,3</sup> <sup>1</sup> <i>Centre for Advanced Photonics and Process Analysis, Rossa Avenue, Bishopstown, Cork, Ireland,</i> <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, DykeParade, Cork, Ireland,</i> <sup>3</sup> <i>Scottish Universities Physics Alliance (SUPA), School of Physics &amp;Astronomy, St. Andrews,UK</i>
<b>B4</b>	<b>Optical fiber fresnel sensor for monitoring the phase change of the octadecane</b> <u>Wei Han</u> <sup>1</sup> , Gerald Farrell <sup>1</sup> , Yuliya Semenova <sup>1</sup> and Qiang Wu <sup>2</sup> <sup>1</sup> <i>Photonics Research Centre, Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland,</i> <sup>2</sup> <i>Department of Physics and Electrical Engineering, Northumbria University, Newcastle Upon Tyne, NE1 8ST, United Kingdom</i>
<b>B5</b>	<b>Thermally stable hybrid laser based on silicon nitride bragg reflector</b> <u>S. Iadanza</u> <sup>1,2</sup> , P. Singaravelu <sup>1,2</sup> , D. Panettieri <sup>1</sup> , A.P.Bakoz <sup>1,2</sup> , S. A. Schulz <sup>1,2</sup> , G. C. R. Devarapu <sup>1,2</sup> , L. O’Faolain <sup>1,2</sup> <sup>1</sup> <i>Advanced Photonics &amp; Process Analysis, Cork Institute of Technology, Cork, Ireland,</i> <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>B6</b>	<b>Tunable optical frequency comb-based transmitter</b> <u>A.Kaszubowska-Anandarajah</u> <sup>1</sup> , C. Blumm <sup>1</sup> , A. Moscoso-Martir <sup>2</sup> , F. Merget <sup>2</sup> , J. Witzens <sup>2</sup> and P.M. Anandarajah <sup>3</sup> <sup>1</sup> <i>Connect Centre, Trinity College Dublin, Dunlop/Oriel House, Dublin, Ireland</i> <sup>2</sup> <i>Integrated Photonics Laboratory, RWTH Aachen University, Aachen, Germany</i> <sup>3</sup> <i>Radio and Optical Communications Lab., Dublin City University, Glasnevin, Dublin, Ireland</i>
<b>B7</b>	<b>A 56gb/s pam4 clock and data recovery IC</b> <u>M. Khanghah</u> <sup>1</sup> , K.Sadeghipour <sup>2</sup> , P.Townsend <sup>1</sup> and P.Ossieur <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland,</i> <sup>2</sup> <i>now with Cypress Semiconductor, Cork, Ireland</i>
<b>B8</b>	<b>5G radio over fibre utilising uf-ofdm and optical heterodyning</b> <u>E.P. Martin</u> <sup>1</sup> , C. Browning <sup>1</sup> , Arman Farhang <sup>2</sup> and L.P. Barry <sup>1</sup> <sup>1</sup> <i>Department of Electronic Engineering, Dublin City University, Glasnevin, Dublin 9, Ireland,</i> <sup>2</sup> <i>CONNECT Research Centre, Dunlop Oriel House, Trinity College Dublin, Dublin 2, Ireland</i>
<b>B9</b>	<b>15-Gbaud silicon photonic interconnect</b> <u>B. Murray</u> , M. Power, S. Facchin, S. Zhou, C. Antony, C. Eason, C. Scarcella, G. Talli, P. O’Brien, P. Ossieur and P.D. Townsend <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>B10</b>	<b>Low power 15 Gbaud pam-4 silicon photonic lumped mach-zehnder modulator</b> <u>M.J. Power</u> , S. Zhou, C. Antony, B. Murray, C. Eason, C. Scarcella, G. Talli, P. O’Brien, P. Ossieur, and P.D. Townsend <i>Tyndall National Institute &amp;University College Cork, Cork, Ireland</i>

<b>B11</b>	<b>Development of technologies in the 2 micron waveband#</b> <u>E. Russell</u> <sup>1,2</sup> , N. Kavanagh <sup>1,2</sup> , K. Shortiss <sup>1</sup> and F. Gunning <sup>1,2</sup> <sup>1</sup> <i>Department of Physics, University College Cork, College Road, Cork, Ireland</i> <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>B12</b>	<b>Silicon photonic crystal based external cavity laser</b> <u>P. Singaravelu</u> <sup>1,2</sup> , S. Iadanza <sup>1,2</sup> , A.P. Bakoz <sup>1,2</sup> , A. A. Liles <sup>3</sup> , G.C.R. Devarapu <sup>1,2</sup> , S. Hegarty <sup>1,2</sup> , G. Huyet <sup>1,2</sup> and L. O' Faolain <sup>1,2,3</sup> <sup>1</sup> <i>Centre for Advanced Photonics &amp; Process Analysis, Cork Institute of Technology, Cork, Ireland,</i> <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i> <sup>3</sup> <i>Scottish Universities Physics Alliance (SUPA), School of Physics &amp; Astronomy, St Andrews, UK</i>
<b>B13</b>	<b>Demonstration of software defined control of white box ethernet transceivers with tuneable wavelengths</b> <u>Sean Ahearne</u> <sup>1,2</sup> , Fatima Gunning <sup>2</sup> <sup>1</sup> <i>Department of Computer Science, Cork Institute of Technology, Bishopstown, Cork, Ireland,</i> <sup>2</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>B14</b>	<b>Raman amplification for future 100g optical access networks</b> <u>C. Antony</u> <sup>1,3</sup> , M. Dalla Santa <sup>2,3</sup> , G. Talli <sup>1,3</sup> and P. D. Townsend <sup>1,3</sup> <sup>1</sup> <i>Department of Physics, University College Cork, Cork, Ireland,</i> <sup>2</sup> <i>Department of Electrical and Electronic Engineering, University College Cork, Cork, Ireland,</i> <sup>3</sup> <i>Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>B15</b>	<b>Novel optical biosensor for the detection of metal ions in blood serums</b> <u>Sabad-e-Gul</u> <sup>1</sup> , John Cassidy <sup>2</sup> , Izabela Naydenova <sup>1</sup> <sup>1</sup> <i>Centre for Industrial and Engineering Optics/School of Physics, College of Sciences and Health, Dublin Institute of Technology, Kevin Street, Dublin 8,</i> <sup>2</sup> <i>School of Chemical and Pharmaceutical Sciences, College of Sciences and Health, Dublin Institute of Technology, Kevin Street, Dublin 8</i>
<b>B16</b>	<b>High bandwidth semipolar (1122) InGaN/GaN LED</b> <u>M.Haemmer</u> , B. Roycroft, M. Akhter and B. Corbett <i>Tyndall National Institute, University College Cork, Lee Maltings, Dyke Parade, Cork, Ireland</i>
<b>B17</b>	<b>Spectral roll off factor reduction with WSS</b> <u>A. Kaur</u> <sup>1</sup> and F.C. Garcia Gunning <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, University College Cork, Cork, Ireland</i>
<b>B18</b>	<b>Injection locking at 2µm</b> <u>N. Kavanagh</u> <sup>1</sup> , B. Murray <sup>1</sup> , D. Goulding <sup>1,2</sup> , P.E. Morrissey <sup>1</sup> , R. Sheehan <sup>1</sup> , B. Corbett <sup>1</sup> and F.C. Garcia Gunning <sup>1</sup> <sup>1</sup> <i>Tyndall National Institute, University College Cork, Cork, Ireland</i> <sup>2</sup> <i>Centre for Advanced Photonics and Process Analysis (CAPPA), Cork Institute of Technology, Cork, Ireland</i>
<b>B19</b>	<b>Multimode interference fiber structures as curvature sensors</b> <u>Xiaokang Lian</u> <sup>1*</sup> , Dejun Liu <sup>1</sup> , Wei Han <sup>1</sup> , Arun Kumar Mallik <sup>1</sup> , Fangfang Wei <sup>1</sup> , Qiang Wu, <sup>1,2</sup> Gerald Farrell <sup>1</sup> and Yuliya Semenova <sup>1</sup>

	<sup>1</sup> Photonics Research Centre, Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland, <sup>2</sup> Department of Mathematics, Physics and Electrical Engineering, Northumbria University, Newcastle Upon Tyne, NE1 8ST, UK
<b>B20</b>	<b>Fast reconfigurable soa-based coherent wavelength conversion using switching tuneable pump lasers</b> <u>Yi Lin</u> <sup>1</sup> , Aravind P. Anthur <sup>1</sup> , Sean O'Duill <sup>1</sup> , Fan Liu <sup>2</sup> , Yonglin Yu <sup>2</sup> and Liam P. Barry <sup>1</sup> <sup>1</sup> School of Electronic Engineering, Dublin City University, Dublin 9, Ireland. <sup>2</sup> Wuhan National Laboratory for Optoelectronics, Wuhan, China
<b>B21</b>	<b>Demonstration of software defined control of whitebox optical devices</b> <u>Y. Verbishchuk</u> <sup>1,2</sup> , F.C.G. Gunning <sup>2</sup> <sup>1</sup> Cork Institute Of Technology, Rossa Avenue, Bishopstown, Cork, Ireland <sup>2</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland

### Photonic Materials

<b>B22</b>	<b>Thermal degradation of thin plasmonic films under focused cw-laser illumination</b> <u>William M Abbott</u> <sup>1, 2, 3</sup> , Simon Corbett <sup>1,2, 3</sup> , Amanda Petford-Long <sup>4,5</sup> , Sheng Zhang <sup>4</sup> , John F Donegan <sup>1,2,3</sup> , and David McCloskey <sup>1,2,3</sup> <sup>1</sup> School of Physics, Trinity College Dublin, College Green, Dublin 2, Ireland <sup>2</sup> CRANN, Trinity College Dublin, College Green, Dublin 2, Ireland <sup>3</sup> AMBER, Trinity College Dublin, College Green, Dublin 2, Ireland <sup>4</sup> Materials Science Division, Argonne National Laboratory, Lemont, IL 60439, USA <sup>5</sup> Department of Materials Science and Engineering, Northwestern University, Evanston, IL 60208, USA
<b>B23</b>	<b>Luminescence of doped Zinc oxide thin films doped Gadolinium</b> S. Khannyra <sup>1</sup> , <u>M. Addou</u> <sup>1,2</sup> , H. Ftouhi <sup>2</sup> , A. Boucetta <sup>1</sup> , M. El jouad <sup>1</sup> , A. Mrigal <sup>1</sup> , M.Jbilou <sup>2</sup> , M.Diani <sup>2</sup> <sup>1</sup> Laboratoire Optoélectronique et Physico-chimie des Matériaux, Unité de Recherche Associée au CNRST- URAC- 14, Université Ibn Tofail, Faculté des Sciences BP 133, Kenitra 14000, Morocco <sup>2</sup> Laboratory of Materials and valorization of Natural Resources, University Abdelmalek Essaadi- FST Tangier, Morocco
<b>B24</b>	<b>Theory of In<sub>y</sub>Ga<sub>1-y</sub>As<sub>1-x</sub>Bi<sub>x</sub> dilute bismide alloys: mid-infrared diode lasers operating beyond 3 μm on conventional InP substrates</b> <u>Christopher A. Broderick</u> <sup>1,2</sup> , Wanshu Xiong <sup>2</sup> , Stephen J. Sweeney <sup>3</sup> , Eoin P. O'Reilly <sup>1,4</sup> and Judy M. Rorison <sup>2</sup> <sup>1</sup> Photonics Theory Group, Tyndall National Institute, Lee Maltings, Cork T12 R5CP, Ireland, <sup>2</sup> Department of Electrical and Electronic Engineering, University of Bristol, Bristol BS8 1UB, U.K., <sup>3</sup> Advanced Technology Institute and Department of Physics, University of Surrey, Guildford GU2 7XH, U.K., <sup>4</sup> Department of Physics, University College Cork, Cork T12 YN60, Ireland
<b>B25</b>	<b>Method for surface passivation of InP photodiodes</b> <u>J. Browne</u> <sup>1</sup> , J. Justice <sup>1</sup> , and B. Corbett <sup>1</sup> <sup>1</sup> Tyndall National Institute, University College Cork, Lee Maltings, Dyke Parade, Cork, Ireland

<b>B26</b>	<b>Optical characterization of photo-polymer material using <math>\lambda</math> 532nm and investigation into future use at <math>\lambda</math> 850nm and <math>\lambda</math> 1310nm</b> <u>Derek Cassidy</u> <sup>1</sup> , Ra'ed Malallah <sup>1,2</sup> , Inbarasan Muniraj <sup>1</sup> and John T. Sheridan <sup>1</sup> <sup>1</sup> School of Electrical and Electronic Engineering, UCD Communications and Optoelectronic Research Centre, University College, Dublin, Belfield, Dublin 4, Ireland, <sup>2</sup> Physics Department, Faculty of Science, University of Basrah, Garmat Ali, Basrah, Iraq
<b>B27</b>	<b>Electronic Properties of Highly Mismatched Alloys Ge:C Insights from Hybrid Functional Density Functional Theory</b> <u>Amy Kirwan</u> <sup>1,2</sup> , Stefan Schulz <sup>1</sup> , and Eoin P. O'Reilly <sup>1</sup> <sup>1</sup> Photonics Theory Group, Tyndall National Institute, Lee Maltings, Cork T12 R5CP, Ireland, <sup>2</sup> Department of Physics, University College Cork, Cork T12 YN60, Ireland
<b>B28</b>	<b>Large area thin film transfer of 2d and 3d langmuir-blodgett photonic films</b> <u>T. Kohoutek</u> <sup>1</sup> , M. Parchine <sup>1</sup> , M. Bardosova <sup>1</sup> and M.E. Pemble <sup>1,2</sup> <sup>1</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland <sup>2</sup> Department of Chemistry, University College Cork, College Road, Cork, Ireland
<b>B29</b>	<b>Investigations of self-written waveguides in photopolymer material</b> <u>Ra'ed Malallah</u> <sup>1,2</sup> , Derek Cassidy <sup>1</sup> , Inbarasan Muniraj <sup>1</sup> , and John T. Sheridan <sup>1</sup> <sup>1</sup> School of Electrical and Electronic Engineering, UCD Communications and Optoelectronic Research Centre, University College Dublin, Belfield, Dublin 4, Ireland. <sup>2</sup> Physics Department, Faculty of Science, University of Basrah, Garmat Ali, Basrah, Iraq.
<b>B30</b>	<b>Large area colloidal photonic crystals for light trapping in flexible organic photovoltaic cells</b> <u>Mikhail Parchine</u> <sup>1</sup> , Tomas Kohoutek <sup>1</sup> , Maria Bardosova <sup>1</sup> and Martyn E. Pemble <sup>1,2</sup> <sup>1</sup> Tyndall National Institute, UCC, Lee Maltings, Dyke Parade, Cork, Ireland <sup>2</sup> Department of Chemistry, University College Cork, Cork, Ireland
<b>B31</b>	<b>Visibility of two-dimensional materials on gold substrates</b> <u>M. Velický</u> , W.R. Hendren, G.E. Donnelly, and F. Huang Centre for Nanostructured Media, School of Mathematics and Physics, Queen's University Belfast, Belfast, BT7 1NN, United Kingdom

#### Photonic Devices

<b>B32</b>	<b>Designing quantum well structures for mid-infrared applications</b> <u>Reza Arkani</u> , Christopher A. Broderick, Stefan Schulz, and Eoin P. O'Reilly Department of Physics, University College Cork, College Road, Cork, Ireland, Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland
<b>B33</b>	<b>Influence of controlled feedback intensity through symmetric dual loop feedback on the noise characteristics of passively mode-locked two-section quantum dash laser</b> <u>Haroon Asghar</u> , Wei Wei, Alfonso Gonzalez and John G. McInerney Department of Physics and Tyndall National Institute, University College Cork, Cork, Ireland



<b>B34</b>	<p><b>AlGaInP quantum well based 610 nm metamorphic LEDs as efficient red light emitters</b></p> <p><u>Silviu Bogusevski</u><sup>1,3</sup>, Andrea Pescaglini<sup>2</sup>, Emanuele Pelucchi<sup>2,3</sup>, and Eoin P. O'Reilly<sup>1,3</sup></p> <p><sup>1</sup>Photonics Theory Group, Tyndall National Institute, Lee Maltings, Cork T12 R5CP, Ireland, <sup>2</sup>Epitaxy and Physics of Nanostructures Group, Tyndall National Institute, Lee Maltings, Cork T12 R5CP, Ireland, <sup>3</sup>Department of Physics, University College Cork, Cork T12 YN60, Ireland</p>
<b>B35</b>	<p><b>Multi period surface grating semiconductor laser</b></p> <p><u>G. Jain</u><sup>1</sup>, M.J. Wallace<sup>1</sup>, and J.F. Donegan<sup>1</sup></p> <p><sup>1</sup>School of Physics and CRANN, Trinity College Dublin, Dublin 2, Ireland</p>
<b>B36</b>	<p><b>Synthesis, computational modeling and characterization of solution processable organic semiconductors for potential applications in photonic devices</b></p> <p><u>M. H. Sayyad</u><sup>1,*</sup>, N. Nasr<sup>1</sup>, R. A. Toor<sup>1</sup>, S. Sajjad<sup>1</sup>, S. A. A. Shah<sup>1</sup>, T. Manzoor and Q. Qiao<sup>2</sup></p> <p><sup>1</sup>Faculty of Engineering Sciences, GIK Institute of Engineering Sciences and Technology, Pakistan <sup>2</sup>Center for Advanced Photovoltaics, South Dakota State University, Brookings, USA</p>
<b>B37</b>	<p><b>Shorter focal length holographic lenses for led applications</b></p> <p><u>S. Keshri</u>, K. Murphy, I. Naydenova, V. Toal, S. Martin</p> <p>Centre for Industrial and Engineering Optics/School of Physics, College of Sciences and Health Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland</p>
<b>B38</b>	<p><b>Theoretical and Experimental Study of the Phase Noise of Modulated Grating Y-branch Lasers</b></p> <p><u>Fan Liu</u><sup>1,2</sup>, Yi Lin<sup>2</sup>, Ye Liu<sup>1</sup>, Aravind P. Anthur<sup>2</sup>, Yonglin Yu<sup>1</sup> and Liam Barry<sup>2</sup></p> <p><sup>1</sup>Wuhan National Laboratory for Optoelectronics, School of Optical and Electronic Information, Huazhong University of Science &amp; Technology, Wuhan 430074, Hubei, China, <sup>2</sup>Research Institute for Networks and Communications Engineering (RINCE), Dublin City University, Dublin 9, Ireland</p>
<b>B39</b>	<p><b>High resolution temperature mapping of diode laser arrays using ccd – thermoreflectance</b></p> <p><u>S. Corbett</u><sup>1</sup>, Michael Wallace, and D. McCloskey<sup>1</sup></p> <p><sup>1</sup>School of Physics, Trinity College Dublin, College Green, Dublin, Ireland</p>
<b>B40</b>	<p><b>Photonic structures for development of irreversible temperature indicators</b></p> <p><u>M. Irfan</u>, T. Mikulchik, S. Martin, I. Naydenova*</p> <p>Centre for Industrial and Engineering Optics/School of Physics, College of Sciences and Health, Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland</p>
<b>B41</b>	<p><b>Holographic diffractive diffusers fabricated using controlled laser speckle</b></p> <p><u>K. Murphy</u><sup>1</sup>, V. Toal<sup>1</sup>, I. Naydenova<sup>1</sup>, and S. Martin<sup>1</sup></p> <p><sup>1</sup>IEO Centre, School of Physics and Clinical &amp; Optometric Sciences, DIT, Kevin St, Dublin 8</p>

<b>B42</b>	<b>Printable power</b> <u>D. Quinn</u> <sup>1</sup> , J. O'Callaghan <sup>1</sup> , B. Roycroft <sup>1</sup> , R. Loi <sup>1</sup> , A. J. Trindade <sup>2</sup> , A. Gocalinska <sup>1</sup> , E. Pelucchi <sup>1</sup> , C. A. Bower <sup>2</sup> and B. Corbett <sup>1</sup> <sup>1</sup> Tyndall National Institute, University College Cork, Lee Maltings, Cork, Ireland <sup>2</sup> X-Celeprint Limited, Lee Maltings, Dyke Parade, Cork, Ireland
<b>B43</b>	<b>Monolithic integration of a tunable laser, modulator and a wavelength monitor</b> <u>P. Ramaswamy</u> <sup>1</sup> , J. O'Callaghan <sup>1</sup> , F.H. Peters <sup>1,2</sup> , B. Corbett <sup>1,2</sup> and B. Roycroft <sup>1</sup> <sup>1</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland <sup>2</sup> Department of Physics, University College Cork, College Road, Cork, Ireland
<b>B44</b>	<b>Narrow-linewidth 1x2 MMI-teardrop laser diodes</b> <u>H. Yang</u> <sup>1</sup> , M.Q. Yang <sup>1</sup> , Z.K. Jia <sup>1</sup> , D. C. Hall <sup>3</sup> , F. H. Peters <sup>1,2</sup> <sup>1</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland <sup>2</sup> Department of Physics, University College Cork, College Road, Cork, Ireland <sup>3</sup> Department of Electrical Engineering University of Notre Dame Notre Dame, USA
<b>B45</b>	<b>High power blue superluminescent LEDs</b> <u>R. Cahill</u> <sup>1,2</sup> , P.P. Maaskant <sup>2</sup> , M. Akhter <sup>2</sup> and B. Corbett <sup>1,2</sup> <sup>1</sup> Department of Physics, University College Cork, College Road, Cork, Ireland <sup>2</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland
<b>B46</b>	<b>Characterisation of IQ modulator for a terabit superchannels testbed</b> N. Canas-Estrada <sup>1,2</sup> , F.G. Gunning <sup>1,3</sup> <sup>1</sup> Tyndall National Institute, <sup>2</sup> Department of Electrical and Electronic Engineering, <sup>3</sup> Department of Physics, University College Cork, Ireland
<b>B47</b>	<b>Intensity and phase dynamics of an optothermal Instability in quantum dot lasers</b> <u>Michael Dillane</u> <sup>1,2</sup> , <u>David Goulding</u> <sup>2,3</sup> and <u>Bryan Kelleher</u> <sup>1,2</sup> <sup>1</sup> Department of Physics, University College Cork, College Road, Cork, Ireland <sup>2</sup> Tyndall National Institute, Lee Maltings, Dyke Parade, Cork, Ireland <sup>3</sup> Centre for Advanced Photonics and Process Analysis, Cork Institute of Technology, Cork, Ireland,

#### Industry & Entrepreneurship

<b>B48</b>	<b>Value Chain Analysis - Assessing an early stage photonics product</b> Ian McCabe & Gerard M. O'Connor School of Physics, NUI Galway, Ireland
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## Exhibition



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### Wednesday 13<sup>th</sup> September

9:30-11:00	<i>Inis Mor Ballroom Section 1</i> <b>Welcome Address: Martin Leahy</b> <b>Plenary 1: Paul Phelan &amp; Stefan Andersson-Engels</b>	
11:00-11:30	Coffee Break	
11:30-13:00	<i>Inis Mor Ballroom Section 1</i> <b>Imaging 1</b>	<i>Inis Mor Ballroom Section 2</i> <b>Quantum Optics and Quantum Technologies</b>
13:00-14:00	Lunch	
14:00-15:30	<i>Inis Mor Ballroom Section 1</i> <b>Imaging 2</b>	<i>Inis Mor Ballroom Section 2</i> <b>Laser Materials and Laser-Plasma Interactions</b>
15:30-16:00	Coffee Break	
16:00-17:30	<i>Inis Mor Ballroom Section 1</i> <b>Biophotonics and Optical Sensing 1</b>	
17:30-18:45	<i>Inis Mor Ballroom Section 3</i> <b>Poster Session 1 and Wine Reception</b>	

### Thursday 14<sup>th</sup> September

9:00-9.45	<i>Inis Mor Ballroom Section 1</i> <b>Plenary 2: Clivia M. Sotomayor Torres</b>	
9:45-11.15	<i>Inis Mor Ballroom Section 1</i> <b>Biophotonics and Optical Sensing 2</b>	
11:15-11:45	Coffee Break	
11:45-13.15	<i>Inis Mor Ballroom Section 1</i> <b>Optical Communications and Networks 1</b>	<i>Inis Mor Ballroom Section 2</i> <b>Nanophotonics and Plasmonics</b>
13:15-14:45	Lunch with Inclusion and Diversity in Photonics in Ireland sponsored by IEEE	
14:45-16.00	<i>Inis Mor Ballroom Section 2</i> <b>Industry and Entrepreneurship</b>	
16:00-16:30	Coffee Break	
16:30-18:00	<i>Inis Mor Ballroom Section 1</i> <b>Optical Communications and Networks 2</b>	<i>Inis Mor Ballroom Section 2</i> <b>Photonic Integration and Packaging</b>
18:00-19:30	<i>Inis Mor Ballroom Section 3</i> <b>Poster Session 2</b>	
19:45	Conference Dinner	

### Friday 15<sup>th</sup> September

9:30-10.15	Inis Mor Ballroom Section 1 Plenary 3: Kent D. Choquette
10.15-11.45	Inis Mor Ballroom Section 1 Photonic Materials
11:45-12:15	Coffee Break
12:15-13.45	Inis Mor Ballroom Section 1 Photonic Devices
Conference Close	

