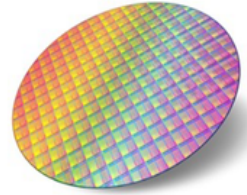




SIOE 2026



Semiconductor and Integrated Opto-Electronics Conference

Semiconductor and Integrated Opto-Electronics Conference

Cardiff University
31st March - 2nd April 2026



South Wales
Compound
Semiconductor Place
Based Impact
Acceleration Account



Institute of Physics
Semiconductor Physics Group



Institute for Compound
Semiconductors
Sefydliad ar gyfer
Lled-ddargludyddion Cyfansawdd





Conference Locations

Location: Centre for Student Life

Address: Park Place, Cathays, Cardiff, CF10 3BB

Parking: On-street pay and display at Park Place and on Museum Avenue (we cannot reimburse costs)

Registration Location: Centre for Student life, 3rd floor

Oral Presentations: Sir Stanley Thomas Lecture Theatre, 2nd and 3rd floor

Refreshment Location: Centre for Student life, 3rd floor

Commemorative Talks: Sbarc|Spark

Address: Maindy Road, Cardiff, CF24 4HQ

Welcome Drinks and Poster Session : Translational Research Hub

Address: Maindy Road, Cardiff, Wales, UK, CF24 4HQ

Banquet location: Cornerstone

Address: Charles Street, CF10 2SF



Programme

Tuesday 31st March

12.00	Registration and light lunch 3rd floor, Centre for Student Life
14.00	Session 1: Epitaxial Growth Sir Stanley Thomas Lecture Theatre, Centre for Student Life
15.45	Refreshment Break 3rd floor, Centre for Student Life
16.30	Session 2: Commemorative Talks Event Space, Sbarc Spark
17.30	Session 3: Poster Session Translational Research Hub
17.30 onwards	Welcome Drinks Reception with Buffet Translational Research Hub - Sponsored by Compound Semiconductor Centre and Photon Design



Wednesday 1st April

09.00	Session 4: Modelling and Design Sir Stanley Thomas Lecture Theatre, Centre for Student Life
10.30	Refreshment Break 3rd floor, Centre for Student Life
11.00	Session 5: Fabrication and Characterisation Sir Stanley Thomas Lecture Theatre, Centre for Student Life
12.45 - 13.45	Lunch and Exhibition 3rd floor, Centre for Student Life
13.45	Session 6: Enhanced Functional Devices Sir Stanley Thomas Lecture Theatre, Centre for Student Life
15.30	Refreshment Break 4th floor, Centre for Student Life
16.00	Session 7: Open Innovation in Sustainable Optoelectronics 4th floor, Centre for Student Life
18.15	Banquet Drinks Reception Cornerstone, Charles Street
19.15 Onwards	Conference Banquet Cornerstone, Charles Street



Thursday 2nd April

09.00	Session 8: Optoelectronics Sir Stanley Thomas Lecture Theatre, Centre for Student Life
10.00	Refreshment Break 3rd floor, Centre for Student Life
11.00	Session 9: Integration Sir Stanley Thomas Lecture Theatre, Centre for Student Life
12.30	Lunch 3rd floor, Centre for Student Life

Conference Close



Programme, Tuesday 31st March

12.00 Onwards - Registration and light lunch

3rd floor, Centre for Student Life

Session 1: Epitaxial Growth

Sir Stanley Thomas Lecture Theatre, Centre for Student Life

- | | |
|--------------|---|
| 14.00 | S26_24 Mechanisms for reconstruction-dependent growth processes in GaAsBi
Douglas Crackett ¹ , Dominic Sterland ² , Gavin Bell ² , Robert D. Richards ^{1*}
<i>¹School of Electrical and Electronic Engineering, The University of Sheffield, ²Department of Physics, The University of Warwick</i> |
| 14.15 | S26_05 AI-assisted determination of GaN growth type from real time RHEED analysis
F. Bastiman ¹ , J. Kang ² , M.I. Lorente ¹ , R. Engel-Herbert ²
<i>¹Bismuth MBE Ltd, London, UK, ²Paul Drude Institute, Berlin, Germany</i> |
| 14.30 | S26_21 In-Situ Optical Metrology for Optoelectronic Devices grown by MOCVD
F. Weigert ^{1*} , K. Haberland ¹ , J. Zettler ¹ , C. Lörchner-Gerdaus ¹
<i>LayTec AG, Seesener Str. 10-13, 10709 Berlin, Germany</i> |
| 14.45 | S26_25 Surface Mediated Self-Regulation in GaAsBi MBE Growth
Heather L. Jacobs, Douglas Crackett, Rebecca Boston, Robert D. Richards
<i>The University of Sheffield</i> |



15.00 S26_13 Al-Mediated Crystal Phase Evolution in AlGaAs Nanowires

Ziyue Yin,¹ Haotian Zeng,¹ Giorgos Boras,¹ Raghavendra R Juluri,² Francisco Alvarado,² Huiwen Deng,¹ Hui Jia,¹ Chong Chen,¹ Yutong Zhang,¹ Anton Velychko,⁴ Fahad Alghamdi,¹ Mingchu Tang,¹ David Mowbray,⁴ Patrick Parkinson,³ Ana M Sanchez,² and Huiyun Liu¹

¹Dept. of Electronic and Electrical Eng., University College London, London WC1E 7JE, United Kingdom, ²Dept. of Physics, University of Warwick, Coventry CV4 7AL, United Kingdom, ³Dept. of Physics and Astronomy, The University of Manchester, M13 9PL, United Kingdom⁴ Dept. of Physics and Astronomy, The University of Sheffield, Sheffield S3 7RH, United Kingdom

15.15 S26_03 Tunnel Epitaxy of III-V Membranes on SOI for Photonic Integration

Zhao Yan¹, Yifu Chen², Martin Ebert², Ka Ming Wong¹, Wenjie Wang², Tim Grieb³, Florian F. Krause³, Andreas Rosenauer³, Graham T. Reed², David J. Thomson², and Qiang Li^{1*}

¹School of Physics and Astronomy, Cardiff University, Cardiff CF24 3AA, UK, ² Optoelectronics Research Centre, University of Southampton, Southampton SO17 1BJ, UK, ³ Institute of Solid State Physics, University of Bremen, 28359 Bremen, Germany

15.30 S26_35 State-of-the-art triple-chamber new MBE system at the National Epitaxy Facility

Z.K. Bishop^{1*}, E. Clarke¹, E.M. Sala¹, P. Fry¹, R.A. Oliver², H. Liu³, M.S. Skolnick⁴, and J. Heffernan¹

¹School of Electronic and Electrical Engineering, University of Sheffield, ²Department of Materials Science and Metallurgy, University of Cambridge, ³Department of Electronic and Electrical Engineering, University College London, ⁴School of Mathematical and Physical Sciences, University of Sheffield

15.45 Refreshment Break

3rd floor, Centre for Student Life

16.10 - Walk to Sbarc|Spark

Session 2: Commemorative Talks

Event space, Sbarc| Spark, Maindy Road

- | | |
|--------------|---|
| 16.30 | <p>S26_50 Design and Characterisation of VCSELs for Miniature Atomic Clocks</p> <p>Samuel Shutts^{1,4}, Curtis Hentschel¹, Sara-Jayne Gillgrass¹, Jack Baker¹, James Meiklejohn¹, Eamonn Fogarty Olmos¹, Josie Travers-Nabialek¹, Craig P. Allford¹ and Peter M. Snowton^{1,4}</p> <p>¹ School of Physics and Astronomy, Cardiff University, Cardiff, UK, CF24 3AA, UK. ⁴ Institute for Compound Semiconductors, School of Physics and Astronomy, Cardiff University, Cardiff, CF24 3AA, UK</p> |
| 16.45 | <p>S26_49 Optical Feedback Sensitivity of InAs Quantum Dots grown on (001)InP by MOCVD</p> <p>Curtis Hentschel¹, Zhongming Cao¹, Ben Salmond¹, Sam Shutts¹, Craig P. Allford¹, Dun Qiao¹, Jack Baker¹, Fwoziah T. Albeladi^{1,2}, Zhao Yan¹, Qiang Li¹ and Peter M. Snowton¹</p> <p>¹School of Physics and Astronomy, Cardiff University, Cardiff, UK.
²University of Jeddah, Jeddah, Saudi Arabia</p> |
| 17.00 | <p>S26_40 An All-Electrical Non-Destructive Approach to VCSEL Lateral Oxidation Characterisation</p> <p>C. P. Allford¹, J. Baker¹, S. J. Gillgrass¹, T. Peach², C. Hentschel¹, S. Shutts¹ and P.M. Snowton¹</p> <p>¹School of Physics and Astronomy, Cardiff University, Cardiff, CF24 3AA, UK, ²Institute for Compound Semiconductors, Cardiff University, Cardiff, CF24 4HQ, UK</p> |



17.15

S26_42 Continuous-wave operation of laterally coupled distributed feedback and ridge waveguide lasers on MOCVD-grown InAs/InP quantum dot material

Tom Simpson^{1,*}, Ben Salmond¹, Zhongming Cao¹, Curtis Hentschel¹, Richard Forrest¹, Shangfeng Liu¹, Qiang Li¹, Peter M. Smowton^{1,2}, Samuel Shutts^{1,2}

¹*School of Physics and Astronomy, Cardiff University, Cardiff, CF24 3AA UK.* ²*Institute for Compound Semiconductors, Cardiff University, Cardiff, CF24 4HQ, UK*

17.30 Onwards - Welcome Drinks and Buffet

Translational Research Hub, Maindy Road

Sponsored by Compound Semiconductor Centre and Photon Design

Session 3: Posters

Translational Research Hub, Maindy Road

S26_39 Optimizing the Wet Etching Method for High-Yield AlAsSb/InGaAs Avalanche Photodiode Fabrication

Haifeng Kan^{1,†}, Danqi Lei^{1,†,*}, Xuanchang Zhang¹, Hexing Wang¹, Suguo Huo², Baolai Liang³, Huiyun Liu¹, Mingchu Tang¹

¹*Department of Electronic and Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, United Kingdom,* ²*London Centre for Nanotechnology, 17-19 Gordon Street, London, WC1H 0AH, United Kingdom.*

³*Department of Electrical and Computer Engineering, California NanoSystem Institute, University of California- Los Angeles, Los Angeles, CA 90095, USA*

S26_47 Arsenic-free (Al)GaInP Light Emitting Diodes on 200 mm Germanium Substrates

J Travers-Nabialek¹, S J Gillgrass¹, C P Allford¹, J Baker¹, L Kastein², J I Davies², and P M Smowton¹

¹School of Physics and Astronomy, Translational Research Hub, Cardiff University, Maindy Road, CF24 4HQ. ²IQE Plc., Pascal Close, St Melons, Cardiff, CF3 0LW.

S26_46 Enhancing Charge Extraction in Perovskite Solar Cells using an MnSe Electron Transport Layer for Enhanced Efficiency via Conduction Band Engineering

Dhafer O. Alshahrani^{1*}, Farooq Muhammad Umar², Farooq Muhammad Sikandar³, Kanwal Sadia³, UIAin Qurat⁴, Saad Muhammad⁵

¹Department of Physics, College of Science, University of Bisha, P.O. Box 551, Bisha 61922, Saudi Arabia. ²Department of Chemistry, Bahauddin Zakariya University, Multan, Punjab, Pakistan. ³Department of Physics, University of Sahiwal, Sahiwal, Pakistan. ⁴Department of Physics, University of Education, Lahore, Punjab, Pakistan. ⁵Department of Electrical Engineering, COMSATS University Islamabad, Lahore Campus, Lahore, Punjab, Pakistan

S26_48 Nanoscale insights into defects and light emission in Zinc-blende InGaN/GaN quantum well grown on U grooved (100) Si

Kimberly Nicholson^{1*}, Jaekwon Lee², Cam Bayram², Zhaoxia Zhou³, Stuart Robertson³ and Naresh Gunasekar¹

¹School of Physics and Astronomy, Queen's Buildings, The Parade, Cardiff CF24 3AA, UK. ²University of Illinois at Urbana-Champaign, Illinois, 61801, USA and Nick Holonyak, Jr., Micro and Nanotechnology Laboratory, The Grainger College of Engineering, University of Illinois at Urbana-Champaign, Illinois 61801, USA. ³Loughborough Materials Characterisation Centre, Loughborough University, Loughborough LE11 3TU, UK

S26_51 Optical and Device-level Modelling of β -Ga₂O₃-based UV Photodetectors

Rhys Copner^{1*} and Naresh Gunasekar¹

¹School of Physics and Astronomy, Queens Building, The Parade, Cardiff CF24 3AA, UK



S26_51 Modelling Broadband Optical Isolators on a Silicon Photonics Platform

James Hughes

University College London

S26_52 Towards Integrated Optical Sources for Miniature Atomic Sensors

E. Fogarty Olmos¹, B. Salmond¹, W. Meredith², and S. Shutts^{1,3}

¹*School of Physics and Astronomy, Cardiff University, Cardiff CF24 3AA, UK.*

²*Compound Semiconductor Centre Ltd, St Mellons, Cardiff CF3 0LW, UK.* ³*Institute for Compound Semiconductors (ICS), Translational Research Hub, Maindy Road, Cardiff CF24 4HQ, UK.*

S26_53 Electron spectro-microscopy of metal contacts onto p-GaN and annealing

Hemant Kumar Limbu

Cardiff University

S26_54 The study on the vibration-mediated inhomogeneous and homogenous broadening of erbium optical transitions in organic tri-ligand environments.

Pranshi^{1*}, H. Ye², R. Curry³

^{1,2,3} *Department of Electrical and Electronic Engineering, University of Manchester, Manchester, UK*



Programme, Wednesday 1st April

Session 4: Modelling and Design

Sir Stanley Thomas Lecture Theatre, Centre for Student Life

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| 09.00 | <p>S26_01 8 Gb/s PAM-4 secure free space optical communications using chaotic 3.7 μm interband cascade lasers</p> <p>Jiada Xu¹, Hong Han ^{1*}, Yuting Song¹, Kun Pan¹, Zhiwei Jia¹, Jianguo Zhang¹, Mingming Huo², and K. Alan Shore³</p> <p><i>¹Key Laboratory of Advanced Transducers and Intelligent Control System, Ministry of Education, College of Physics and Optoelectronics, Taiyuan University of Technology, Taiyuan 030024, China, ²Qingdao Branch, Naval Aeronautical University, Qingdao 266041, China, ³School of Electronic Engineering, Bangor University, Wales, LL57 1UT, UK</i></p> |
| 09.15 | <p>S26_28 Exploring the Impact of Strain on the Performance Metrics of Group-IV based lasers</p> <p>Che Watson^{1,2}, Aneirin Ellis¹ and Stephen J. Sweeney¹</p> <p><i>¹ James Watt School of Engineering, University of Glasgow, Glasgow, G12 8LT, UK, ² School of Mathematics and Physics, Queens University Belfast, Belfast, BT7 1NN, UK</i></p> |
| 09.30 | <p>S26_07 Strain-engineered polarization and optical loss analysis in bulk SiGeSn for mid-infrared photonics</p> <p>Walid Belaid ^{1*}, Vincent Reboud², Robert Kelsall¹, Zoran Ikonc ¹</p> <p><i>¹ School of Electronic and Electrical Engineering, University of Leeds, LS29JT Leeds, UK. ² CEA-Leti, Université Grenoble Alpes, F-38000 Grenoble, France</i></p> |



09.45 S26_32 Controlling the linear polarization orientation of H1 photonic crystal cavity modes.

Amit Nilabh^{a*}, Wolfgang Langbein^b, Francesco Masia^a

^a School of Biosciences, Cardiff University, Cardiff CF10 3AT, ^b School of Physics and Astronomy, Cardiff University, Cardiff CF10 3AT

10.00 S26_11 Modelling and characterization of Coupled Resonator Induced Absorption (CRIA) in coherently coupled micro-ring resonators (MRRs) for use in optical modulation

M. J. Goodwin, I. F. Crowe, and T. Li

Photon Science Institute, Department of Electrical and Electronic Engineering, The University of Manchester, Manchester, United Kingdom

10.15 S26_22 Design Approaches Towards Improved Performance in Near-Infrared Semiconductor Lasers for Heat-Assisted Magnetic Recording (HAMR) Applications

Qixuan Chen^{1,2,3*}, Dominic A. Duffy², Igor P. Marko², Aidan Goggin³, Robert Bowman¹ and Stephen J. Sweeney²

¹. School of Maths and Physics, Queen's University Belfast, Belfast, BT7 1NN, UK, ². James Watt School of Engineering, University of Glasgow, Glasgow, G12 8LT, UK, ³. Seagate Technology, Derry, BT48 0BF, UK

10.30 - 11.00 Refreshment Break

3rd floor, Centre for Student Life



Session 5: Fabrication and Characterisation

Sir Stanley Thomas Lecture Theatre, Centre for Student Life

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|--------------|--|
| 11.00 | <p>S26_37 Optimised Electron Beam Lithography for Wafer-Scale 150 mm InP Laser Fabrication</p> <p>Tomas Peach, Sanna Makela, Parco Wong, Angela Sobiesierski
<i>Institute for Compound Semiconductors (ICS), Translational Research Hub, Maindy Road, Cardiff CF24 4HQ</i></p> |
| 11.15 | <p>S26_10 Electrical AFM for Probing Local Electronic Functionality in Semiconductor Optoelectronic Devices.</p> <p>Jiahui Qi*, Peter Dewolf and Mickael Febvre
<i>Bruker Nano Surfaces and Metrology, Santa Barbara, CA, USA</i></p> |
| 11.30 | <p>S26_20 Ion Beam Analysis for Characterisation of Advanced Photovoltaic Materials</p> <p>C. D. McAleese¹, V. W. Appuhamilage², H. Shim³, C. Costa¹, N. Sano⁴, I. Jayawardena², J. S. Yun² and M. K. Sharpe¹</p> <p>¹ Surrey Ion Beam Centre, University of Surrey, Guildford, Surrey GU2 7XH, UK, ² Advanced Technology Institute (ATI), University of Surrey, Guildford, Surrey GU2 7XH, UK, ³ Australian Centre for Advanced Photovoltaics (ACAP), School of Photovoltaic and Renewable Energy Engineering, University of New South Wales, Sydney, NSW 2052, Australia, ⁴ Ionoptika Ltd., Chandler's Ford, SO53 4BZ, UK</p> |
| 11.45 | <p>S26_06 A method for measuring radiative recombination time in self-assembled quantum dot laser</p> <p>Ivan B. Karomi¹ and Mohammed S. Al-Ghamd²</p> <p>¹Department of Physics, College of Education for Pure Science, University of Mosul, 41002, Mosul, Iraq. ²Department of Physics, Faculty of Science, King Abdulaziz University P.O. Box 80203, Jeddah 21589, Saudi Arabia</p> |



12.00 S26_17 Identification of mode-hopping in DFB laser diodes using delayed self-heterodyne detection

Saffron Tyler^{1,*} and Bruce Saleeb-Mousa¹

¹Lumentum Technologies UK, Caswell Science and Technology Park, Towcester, NN12 8EQ

12.15 S26_34 Uniformity of 1300 nm InAs Quantum Dot Lasers grown on 150 mm GaAs substrates

Andrew R Smith^{1*}, Craig P Allford¹, Sara-Jayne Gillgrass¹, George M Jandu¹, J Iwan Davies², Andrew Clark³, Peter M Smowton¹

¹Cardiff University, The Parade, Cardiff CF24 3AA, United Kingdom, ²IQE plc, Pascal Close, St Mellons, Cardiff CF3 0LW, United Kingdom, ³ IQE Inc, NC, Gallimore Dairy Road, Greensboro, NC 27409, USA

12.30 S26_45 Optimisation of plasma etching on 150 mm indium phosphide wafers

Tom Simpson¹, Jay Burnett², Adam Beachey², Jacob Mitchell², Kerry Roberts², J. Iwan Davies³, Huma Ashraf², Samuel Shutts^{1,4}

¹School of Physics and Astronomy, Cardiff University, Cardiff, CF24 3AA, UK. ² KLA Corporation (SPTS Division), Celtic Lakes, Newport NP10 8BE, UK. ³IQE plc. St Mellons, Cardiff, CF3 0LW, UK, ⁴ Institute for Compound Semiconductors, Cardiff University, Cardiff, CF24 3AA UK

12.45 - 13.45 Lunch and Exhibition

3rd floor, Centre for Student Life

Session 6: Enhanced Functional Devices

Sir Stanley Thomas Lecture Theatre, Centre for Student Life

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| 13.45 | <p>S26_41 Laterally coupled DFB lasers on a 150 mm InP platform</p> <p>B. Salmond¹, T. Simpson¹, T. Peach², R. Forrest¹, P. Cornish³, W. Meredith³, P. M. Smowton^{1,2}, S. Shutts^{1,2}</p> <p>¹School of Physics and Astronomy, Cardiff University, Cardiff CF24 3AA, ²Institute for Compound Semiconductors (ICS), Translational Research Hub, Maindy Road, Cardiff CF24 4HQ, ³Compound Semiconductor Centre Ltd, St Mellons, Cardiff CF3 0LW</p> |
| 14.00 | <p>S26_29 Direction and polarization control of light emission from GaN LEDs-coupled polarization-dependent metalens</p> <p>Thi Huong Ngo*, Van Doan Le, Pierre-Marie Coulon, Sébastien Chenot, Benjamin Damilano, Rémi Colom, Samira Khadir</p> <p>Université Côte d'Azur, CNRS, CRHEA, Valbonne, France</p> |
| 14.15 | <p>S26_15 Inkjet Printed Colloidal Quantum Dot LED Emitters for Visible Light Communication</p> <p>Sri Datta Aneesh Chodavarapu^{a*}, Chandra Kant^a, Benxuan Li^b and Bo Hou^{a,*}</p> <p>^aSchool of Physics and Astronomy, Cardiff University, Cardiff, CF24 3AA, United Kingdom. ^b Nanoglow Ltd, Cambridge, United Kingdom</p> |
| 14.30 | <p>S26_27 Monolithically Integrated 1.3 μm InGaAsN Laser Diodes on Silicon</p> <p>Patrik Rajala, Riku Isoaho, Jukka Viheriälä, Heikki Virtanen, Mircea Guina</p> <p>Tampere University, Optoelectronics Research Centre, Korkeakoulunkatu 3, 33720 Tampere, Finland</p> |



- 14.45** **S26_44 Asymmetric Tapers for Multimode Interference Reflector Lasers**
 George M. Jandu^{1*}, Andrew. R. Smith¹, Sara-Jayne Gillgrass¹, Peter M. Smowton¹
¹Cardiff University, School of Physics & Astronomy, The Parade, Cardiff CF24 3AA, United Kingdom
- 15.00** **S26_09 Short-cavity InAs/GaAs Quantum-Dot Lasers with 25-nm GaAs Spacers**
 Hexing Wang,¹ Huiwen Deng,¹ Jae-Seong Park,¹ Xuanchang Zhang,¹ Cong Lu,² Haifeng Kan,¹ Haotian Zeng,¹ Yangqian Wang,¹ Dominic Gallagher,³ Junhao Liu,¹ Danqi Lei,¹ Hui Jia,¹ Wei Li,² Peter M. Smowton,⁴ Siming Chen,¹ Alwyn Seeds,¹ Huiyun Liu,¹ Mingchu Tang¹
¹ Department of Electronic and Electrical Engineering, University College London, Torrington Place, WC1E 7JE, United Kingdom. ² College of Materials Science and Engineering, Beijing University of Technology, Beijing 100124, People's Republic of China. ³ Photon Design, Oxford, United Kingdom. ⁴ School of Physics and Astronomy, Cardiff University, The Parade, Cardiff CF24 3AA, United Kingdom
- 15.15** **S26_12 Neuron Surface Emitting Laser (NeuronSEL): A Multi-junction VCSEL for Neuromorphic Photonic Technologies**
 Maria Duque-Gijon,^{1,*} Joshua Robertson,^{1,*} Jack Baker², Xavier Porte¹, Samuel Shutts², Peter M. Smowton², Antonio Hurtado¹
¹Institute of Photonics, SUPA, Department of Physics, University of Strathclyde, 16 Richmond St, Glasgow G1 1XQ, UK. ²Compound Semiconductor Technology Group, Cardiff University, Translational Research Hub, Cardiff CF24 4HQ, Wales, UK



15.30 - Introduction to Session 7 by Lenny Koh

15.35 Refreshment Break

4th floor, Centre for Student Life

15.45 - 17.45 Session 7: Open Innovation in Sustainable Optoelectronics - Refreshments to be served

4th floor, Centre for Student Life

18.15 Banquet Drinks Reception

Cornerstone, Charles Street

19.15 Onwards Conference Banquet

Cornerstone, Charles Street



Programme, Thursday 2nd April

Session 8: Optoelectronics

Sir Stanley Thomas Lecture Theatre, Centre for Student Life

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| 09.00 | <p>S26_08 Post-growth Site-Selective Engineering of Epitaxial Quantum Dots by Focused Ion Beam Implantation</p> <p>Mehdi Ahmadian^{1,2*}, Young In Na³, Maddison Coke¹, Daniel Blight¹, Akshay K Verma³, Ian Farrer³, Jon Heffernan³, Richard J Curry¹</p> <p>¹Photon Science Institute (PSI), Department of Electrical & Electronic Engineering, University of Manchester, Manchester, UK. ²EPSRC Centre for Doctoral Training (CDT) in Compound Semiconductor Manufacturing, Cardiff University, Cardiff, UK. ³National Epitaxy Facility (NEF), Nanoscience and Technology Centre, University of Sheffield, Sheffield, UK</p> |
| 09.15 | <p>S26_30 Antimony-Based Alloys for APD Operation in the e-SWIR</p> <p>L. R. Gilder, A. P. Craig and A.R. J. Marshall</p> <p>Department of Physics, Lancaster University, Lancaster, LA1 4YB</p> |
| 09.30 | <p>S26_36 On-Chip InAs Quantum Dot DFB Laser for Photonic Integration</p> <p>F. Albeladi¹, D. Qiao², S. Gillgrass², N. Albittar², S. Power², C. P. Allford² and P. M. Smowton²</p> <p>¹Department of Physical Sciences, College of Science, University of Jeddah, Jeddah, Saudi Arabia..²School of Physics and Astronomy, Cardiff University, UK.</p> |



- 09.45 S26_33 The use of additive and subtractive manufacturing on Photonic Crystal Surface Emitting Laser to encode orbital angular momentum states for quantum communications**
Gerardo Villarreal Garcia¹, Petros Androvitsaneas^{2*}, James McDougall², Richard J.E. Taylor^{2,3}, Andrew Young², Ruth Oulton², Nicholas Avlonitis¹ and Edmund Harbord²
¹Compound Semiconductor Applications Catapult, Imperial Park, Innovation Centre, Celtic Way, Newport NP10 8BE, UK. ²Quantum Engineering Technology Labs, H. H. Wills Physics Laboratory and School of Electrical, Electronic, and Mechanical Engineering, University of Bristol, Bristol, UK. ³Vector Photonics Limited, Building 4.05, West of Scotland Science Park, Kelvin Campus, 2317 Maryhill Rd, Glasgow, G20 0SP, United Kingdom
- 10.00 S25_38 Semiconductors for Space-based applications**
Stephen Campbell¹, Prabeesh Punathil¹, Nicholas Theodorou¹, Dan Lamb², Hamdi Torun¹, Guillaume Zoppi¹, Vincent Barrioz¹
¹School of Engineering, Physics and Mathematics, Northumbria University, Newcastle upon Tyne, U.K. ²Centre for Integrative Semiconductor Materials (CISM) Swansea University Bay Campus, Fabian Way, Swansea SA1 8EN
- 10.15 S26_31 Resonant cavity enhanced photodetectors for miniaturised e-SWIR spectroscopy**
J.E Fletcher¹, E.W.H Lau¹, J.A Bunyan¹ F. J. Castaño², and A.R.J Marshall¹
¹ Physics Department, Lancaster University, Lancaster, United Kingdom, LA1 4YB. ² Technology R&D department, ams OSRAM AG, Tobelbader Strasse 30, 8141 Premstätten Austria

10.30 - 11.00 Refreshment Break

3rd floor, Centre for Student Life

Session 9: Integration

Sir Stanley Thomas Lecture Theatre, Centre for Student Life

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| 11.00 | <p>S26_14 Hybrid Chiplet-Based Opto-Electronic Integration on SiON/Si Interposer for Co-Packaged Optical I/Os</p> <p>Daibao Hou ^{1,2}, Yuntian Yao ^{1,2}, Xiaotian Cheng ^{1,2}, Shuning Ding ^{1,2}, Qiyu Wu ^{1,2}, Yonghong Hu ³, Wei Pan ³, Chao Huang ³, Huihui Zhu ^{1,2}, Yongzhen Huang ⁴, Chenghui Li ^{1,2} and Chaoyuan Jin ^{1,2,5,*}</p> <p>¹ State Key Laboratory of Silicon and Advanced Semiconductor Materials & College of Information Science and Electronic Engineering, Zhejiang University, Hangzhou 310027, China. ² ZJU-Hangzhou Global Scientific and Technological Innovation Center, Zhejiang University, Hangzhou 311200, China. ³ Zhejiang Laychip Optoelectronics Technology Co., Ltd, Taizhou 317500, China. ⁴ Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, China. ⁵ College of Integrated Circuits, Zhejiang University, Hangzhou 311200, China</p> |
| 11.15 | <p>S26_04 Monolithically Integrated InGaAs/AlGaAs/GaAs 2DEG Hall Effect Circuits</p> <p>Christopher Walsh¹, Mohammadreza Sadeghi² and Mohamed Missous^{1,2}</p> <p>¹Department of Electrical & Electronic Engineering, The University of Manchester Manchester, M13 9PL, United Kingdom. ²Advanced Hall Sensors Ltd., Manchester, M17 1RW, United Kingdom</p> |
| 11.30 | <p>S26_26 Reconfiguration-Aware Optical Circuit Switching for Distributed Training</p> <p>Fangxiao Dong^{1,2}, Aakash Patel³, Robert Kleijnen³, Tongyun Li¹, James Myers², Richard Penty¹, and Qixiang Cheng^{1,*}</p> <p>⁽¹⁾ Department of Engineering, University of Cambridge, Cambridge CB3 0FA, UK; ⁽²⁾ IMEC, 20 Station Road, Cambridge CB1 2JD, UK; ⁽³⁾ IMEC, 3001 Leuven, Belgium</p> |

**11.45****S26_23 A Foundry-Ready Silicon Nitride PDK**

Thomas Parker, David Payne, Eli Ayi-Yovo and Ning Zhang
*CSA Catapult, Future Telecoms Hub, Bristol and Bath Science Park,
Bristol BS16 7FR.*

12.00**S26_19 An electro-optic co-design simulation framework for quantum-dot modulators in high-speed integrated photonic systems**

Liv Hawkins^{1,2}, Solomon McKiernan^{1,2}, Michael Wale^{1,*}
¹University College London, UK. ²University of Cambridge, UK

12.15**S26_16 High-Fidelity MZI Optical Switch Fabric**

Richard J Zhang⁽¹⁾, Peng Bao⁽¹⁾, Chenxi Tan⁽¹⁾, Alan Yilun Yuan⁽¹⁾, Seb Savory⁽¹⁾, Richard Penty⁽¹⁾, and Qixiang Cheng^{(1),*}
⁽¹⁾ Department of Engineering, University of Cambridge, Cambridge CB3 0FA, UK

12.30 - 13.30 Lunch

3rd floor, Centre for Student Life

Conference Closes