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2011 Smart Nano+ Micro Materials and Devices

Technical Program

Connecting minds for global solutions

Conference Dates:
4–7 December 2011

Swinburne Univ. of Technology/
Hawthorn Campus
Melbourne, Australia

Technologies
- Modern challenges in solar, bio- and nano-photonics
- Plasmonics
- Laser fabrication
- Microfluidics
- Sensing
- Solar cells
- ODS & PhC

2011
Technical Program

Smart Nano+ Micro Materials and Devices

A multidisciplinary forum that seeks to advance research in the global use of micro- and nanofabrication technologies.

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SPIE would like to express its deepest appreciation to the symposium chairs, conference chairs, program committees, session chairs, and authors who have so generously given their time and advice to make this symposium possible.

The symposium, like our other conferences and activities, would not be possible without the dedicated contribution of our participants and members. This program is based on commitments received up to the time of publication and is subject to change without notice.

Contents

Welcome

On behalf of SPIE and the symposium organizers, we welcome you to SPIE Smart Nano + Micro Materials and Devices in Melbourne, Australia. The symposium is an interdisciplinary forum for collaboration and learning among top researchers in all fields related to nano- and microscale materials and technologies. Presentations will detail exciting applications in air/water/food quality, energy, security, and medicine.

The conference will run for three days, and will include both oral and poster presentations. We will have over 140 technical presentations in total. Additionally, we will have a one-hour plenary presentation each morning of the conference that you won't want to miss! Our plenary presenters are Martin A. Green, Univ. of New South Wales; Sajeev John, Univ. of Toronto; and Shanhui Fan, Stanford Univ.

The symposium venue is the Swinburne University of Technology Hawthorn Campus, home to world-class research groups in nanophotonics and biophotonics. The campus is only 7 kilometers from downtown Melbourne. A major cultural center of the southern Pacific, the city boasts exquisite Victorian architecture, fine parks and waterways, and a long tradition of multiculturalism. And remember that in Australia, December is springtime!

Symposium Chairs

Saulius Juodkazis,
Swinburne Univ. of Technology

Min Gu,
Swinburne Univ. of Technology

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Special Events

Welcome Reception and Registration

ATC Building Foyer

Sunday 4 December . . . . . 16.00 to 19.00

Registration will be open 16.00 to 19.00. Reception is 17.30 to 19.00. All registered attendees are cordially invited to relax, socialize, and enjoy light refreshments. Please remember to wear your conference registration badge. Dress is casual.

Poster Session/Reception

ATC Building

Monday 5 December . . . . . 18.00 to 19.30

All registered attendees are invited to attend the Poster/Reception. This event will provide the opportunity to meet with colleagues, network, and view the poster papers. The authors will be present at their posters to answer questions and provide in-depth discussions regarding their work. Attendees are required to wear their conference registration badges.

Conference Dinner

ATC Building Foyer

Tuesday 6 December . . . . . 18.30 to 20.00

All registered attendees are invited to attend. A dinner ticket is included in your registration packet. Additional guest tickets can be purchased at the registration desk before noon on Monday.

Plenary Presentations

Nanomaterials in Photovoltaics

ATC 101

Monday 5 December . . . . . 09.00 to 10.00

Martin A. Green, Executive Research Director, ARC Photovoltiacs Ctr. of Excellence, Univ. of New South Wales

Martin Green is currently a Scientia Professor at the University of New South Wales, Sydney, Australia and Executive Research Director of the University's Photovoltaic Centre of Excellence. His group's contributions to photovoltaics include development of the world's highest efficiency silicon solar cells and commercialization of several different cell technologies. He is the author of several books on solar cells and numerous papers. His work has resulted in many major international awards including the 2002 Right Livelihood Award, commonly known as the Alternative Nobel Prize, the 2007 SolarWorld Einstein Award and the 2009 ENI Award for Renewable and Non Conventional Energy.

Photonic Band-Gap Materials: Light Trapping Crystals

ATC 101

Tuesday 6 December . . . . . 09.00 to 10.00

Sajeev John, Professor, Dept. of Physics, Univ. of Toronto

Sajeev John is a "University Professor" at the University of Toronto and Government of Canada Research Chair. He received his Bachelors degree in physics in 1979 from the Massachusetts Institute of Technology and his Ph.D. in physics at Harvard University in 1984. His Ph.D. work at Harvard originated the theory of classical wave localization and in particular the localization of light in three-dimensional strongly scattering dielectrics.

From 1986-1989 he was an assistant professor of physics at Princeton University. While at Princeton, he co-invented (1987) the concept of photonic band gap materials, providing a systematic route to his original conception (1984) of the localization of light. In 1989 he joined the senior faculty at the University of Toronto.

Professor John is the winner of the 2001 King Faisal International Prize in Science, together with C. N. Yang. He is the first ever winner of Canada's Platinum Medal for Science and Medicine in 2002 and the Brockhouse Canada Prize for Interdisciplinary Research in 2004. He has also received the Guggenheim Fellowship (USA) and the Humboldt Senior Scientist Award of Germany. Dr. John received the IEEE Quantum Electronics Award in 2007 for "the invention and development of light-trapping crystals and elucidation of their properties and applications" and the 2008 IEEE Nanotechnology Pioneer Award. He was also awarded the C.V. Raman Chair Professorship of the Indian Academy of Sciences. He is a Fellow of the American Physical Society, the Royal Society of Canada, and the Optical Society of America.

Nanophotonics: Thermal and Solar Applications

ATC 101

Wednesday 7 December . . . . . 09.00 to 10.00

Shanhui Fan, Associate Professor, Stanford Univ.

Shanhui Fan is an Associate Professor of Electrical Engineering at the Stanford University. He received his Ph. D in 1997 in theoretical condensed matter physics from the Massachusetts Institute of Technology (MIT), and was a research scientist at the Research Laboratory of Electronics at MIT prior to his appointment at Stanford. His research interests are in computational and theoretical studies of solid state and photonic structures and devices, especially photonic crystals, plasmonics, and meta-materials. He has published over 220 refereed journal articles that were cited over 13,000 times, has given over 170 invited talks, and was granted 39 US patents. Prof. Fan received a National Science Foundation Career Award (2002), a David and Lucile Packard Fellowship in Science and Engineering (2003), the National Academy of Sciences Award for Initiative in Research (2007), and the Adolph Lomb Medal from the Optical Society of America (2007). Dr. Fan is a Fellow of the American Physical Society, the Optical Society of America, the SPIE, and the IEEE.

Conference 8204

Monday-Wednesday 5-7 December 2011 • Proceedings of SPIE Vol. 8204

SPIE Smart Nano-Micro Materials and Devices

Conference Chairs: **Saulius Juodkazis,** Swinburne Univ. of Technology (Australia); **Min Gu,** Swinburne Univ. of Technology (Australia)

Program Committee: **Boris Chichkov,** Laser Zentrum Hannover e.V. (Germany); **Timothy J. Davis,** Commonwealth Scientific and Industrial Research Organisation (Australia); **Benjamin J. Eggleton,** The Univ. of Sydney (Australia); **James R. Friend,** Monash Univ. (Australia); **Ewa M. Goldys,** Macquarie Univ. (Australia); **Minghui Hong,** National Univ. of Singapore (Singapore); **Chennupati Jagadish,** The Australian National Univ. (Australia); **Yuri S. Kivshar,** The Australian National Univ. (Australia); **Byoungho Lee,** Seoul National Univ. (Korea, Republic of); **Roger A. Lewis,** Univ. of Wollongong (Australia); **Boris S. Luk'yanchuk,** A*STAR - Data Storage Institute (Singapore); **Arnan Mitchell,** RMIT Univ. (Australia); **Razvan Stoian,** Lab. Hubert Curien (France); **Koji Sugioka,** RIKEN (Japan); **Xuehua Wang,** Sun Yat-Sen Univ. (China); **Michael J. Withford,** Macquarie Univ. (Australia); **Yonggang Zhu,** Commonwealth Scientific and Industrial Research Organisation (Australia)

Monday 5 December

SESSION 1

Room: ATC 101 . . . . . Mon. 09.00 to 10.00

Plenary Session on Modern Challenges: Solar, Bio- and Nano-Photonics

09.00: **Nanomaterials in Photovoltaics**, Martin A. Green, ARC Photovoltaics Ctr. of Excellence (Australia) . . . . . [8204-201]

SESSION 2

Room: ATC 101 . . . . . Mon. 10.00 to 13.00

Modern Challenges: Solar, Bio- and Nano-Photonics

10.00: **Auto-luminescent genetically encoded ratiometric indicator for real-time Ca^{2+} imaging at the single cell level** *(Invited Paper)*, Takeharu Nagai, Hokkaido Univ. (Japan) . . . . . [8204-01]

10.40: **Characterization and applications of plasmon fields in metal nanostructures** *(Invited Paper)*, Paul A. Leiderer, Univ. Konstanz (Germany) . . . . . [8204-02]

Refreshment Break . . . . . 11.20 to 11.40

11.40: **Imprint process for optical device with periodic structure** *(Invited Paper)*, Junji Nishii, Hokkaido Univ. (Japan) . . . . . [8204-03]

12.20: **3D active photonic nanostructures** *(Invited Paper)*, Maria Farsari, Foundation for Research and Technology-Hellas (Greece) . . . . . [8204-04]

Lunch Break . . . . . 13.00 to 14.20

Conference 8204

Sessions [3,4] [5, 6] [7, 8] [9, 10] run concurrently.

SESSION 3

Room: ATC 101 . . . . . Mon. 14.20 to 16.00

Laser Fabrication I

14.20: **Applications of nonlinear laser nano/microlithography: fabrication from nanophotonic to biomedical components** *(Invited Paper)*, Mangirdas Malinauskas, Albertas Žukauskas, Paulius Danilevicius, Marius Rutkauskas, Sima Rekštyté, Vytautas Purlys, Roaldas Gadonas, Vilnius Univ. (Lithuania) . . . . . [8204-05]

15.00: **Fabrication of metallic gyroid microstructures with true cubic symmetry**, Mark D. Turner, Dario Buso, Swinburne Univ. of Technology (Australia); Gerd E. Schröder-Turk, Friedrich-Alexander Univ. Erlangen-Nürnberg (Germany); Min Gu, Swinburne Univ. of Technology (Australia). . . . . [8204-06]

15.20: **Direct laser writing of polylactide 3D scaffolds for neural tissue engineering applications**, Vasileia Melissinaki, Foundation for Research and Technology-Hellas (Greece); Andrew Gill, Ilida Ortega, The Univ. of Sheffield (United Kingdom); Maria Vamvakaki, Foundation for Research and Technology-Hellas (Greece); J. W. Haycock, The Univ. of Sheffield (United Kingdom); Anthi Ranella, Costas Fotakis, Foundation for Research and Technology-Hellas (Greece); Frederik Claeyssens, The Univ. of Sheffield (United Kingdom); Maria Farsari, Foundation for Research and Technology-Hellas (Greece) . . [8204-07]

15.40: **Three-dimensional hybrid photonic crystals with emission tuneable nanocrystal quantum dots for emission control**, Zhengguang He, Baohua Jia, Min Gu, Swinburne Univ. of Technology (Australia) . . . . . [8204-08]

Refreshment Break . . . . . 16.00 to 16.20

SESSION 4

Room: ATC 101 . . . . . Mon. 16.20 to 18.20

Laser Fabrication II

16.20: **Holographic femtosecond laser processing system with an adaptive control** *(Invited Paper)*, Yoshio Hayasaki, Satoshi Hasegawa, Utsunomiya Univ. (Japan) . . . . . [8204-09]

17.00: **Direct laser writing of nonlinear chalcogonide gyroids**, Benjamin P. Cumming, Mark D. Turner, Swinburne Univ. of Technology (Australia); Sukhanta Debbarma, Barry Luther-Davies, Australian National Univ. (Australia); Gerd E. Schröder-Turk, Friedrich-Alexander Univ. Erlangen-Nürnberg (Germany); Min Gu, Swinburne Univ. of Technology (Australia) . . . . . [8204-10]

17.20: **Micro-channel drilling of Ni film on silicon by using laser beam interference ablation for solid oxide fuel cells**, Mindaugas Gedvilas, Bogdan Voisiat, Simonas Indrišiūnas, Mindaugas Maciulevičius, Institute of Physics (Lithuania); Sigitas Tamulevičius, Brigita Abakevičienė, Viktoras Grigaliúnas, Kaunas Univ. of Technology (Lithuania); Gediminas Račiukaitis, Institute of Physics (Lithuania). . . . . [8204-11]

17.40: **TBD** *(Invited Paper)*, Richard F. Haglund, Jr., Vanderbilt Univ. (United States) . . . . . [8204-141]

SESSION 5

Room: EN 101 . . . . . Mon. 14.20 to 15.40

Microfluidics I

14.20: **Microscale acoustofluidics: microfluidics via ultrasonics** *(Invited Paper)*, James R. Friend, Monash Univ. (Australia) . . . . . [8204-13]

15.00: **Dielectrophoresis of micro/nano particles using curved microelectrodes**, Khashayar Khoshmanesh, Deakin Univ. (Australia); Francisco J. Tovar-Lopez, RMIT Univ. (Australia); Chen Zhang, Univ. of South Australia (Australia); Sara Baratchi, Monash Univ. (Australia); Aminuddin A. Kayani, RMIT Univ. (Australia); Saeid Nahavandi, Deakin Univ. (Australia); Donald Wlodkowic, The Univ. of Auckland (New Zealand); Arnan Mitchell, Kourosh Kalantar-zadeh, RMIT Univ. (Australia) . . . . . [8204-15]

15.20: **Influence of flow rate on the droplet generation process in a microfluidic chip**, Florian Lapierre, Nan Wu, Yonggang Zhu, Commonwealth Scientific and Industrial Research Organisation (Australia). . . . . [8204-16]

Refreshment Break . . . . . 15.40 to 16.20

SESSION 6

Room: EN 101 . . . . . Mon. 16.20 to 18.00

Microfluidics II

16.20: **ADMiER-ing thin, but complex, fluids**, Amarin G. McDonnell, Prabhakar Ranganathan, James R. Friend, Pradipto K. Bhattacharjee, Leslie Y. Yeo, Monash Univ. (Australia) . . . . . [8204-17]

16.40: **Preliminary capture-probe based separation/enrichment of products of multiplex PCR in microfluidic channel for subsequent capillary electrophoresis separation**, Dmitriy Khodakov, Claire Lenehan, Gunther Andersson, Hilton Kobus, Amanda V. Ellis, Flinders Univ. (Australia). . . . . [8204-18]

17.00: **Surface acoustic-wave transmission in UV-bonded microdevices: applications in micro-scale flow control**, Sean M. Langelier, Leslie Y. Yeo, James R. Friend, Monash Univ. (Australia) . . . . . [8204-19]

17.20: **Optical sensing in a microfluidic device via morphology dependent resonance**, Stephen K. Weber, Daniel J. Day, Min Gu, Swinburne Univ. of Technology (Australia) . . . . . [8204-20]

17.40: **Capillary flow in microfluidic Hele-Shaw cells**, Karolina Petkovic-Duran, Yonggang Zhu, Commonwealth Scientific and Industrial Research Organisation (Australia) . . . . . [8204-21]

Sessions [3,4] [5, 6] [7, 8] [9, 10] run concurrently.

SESSION 7

Room: EN 102 . . . . . Mon. 14.20 to 16.00

Sensing

14.20: **Optical fibres with micro and nanoscale structuring; fabrication, new properties, and applications** *(Invited Paper)*, Tanya M. Monro, The Univ. of Adelaide (Australia) . . . . . [8204-22]

15.00: **Dendritic nanostructures grown from a single isolated anodic alumina nanochannel**, Shih-Yung Chen, Institute of Atomic and Molecular Sciences (Taiwan); Hsuan-Hao Chang, National Taiwan Univ. (Taiwan); Ming-Yu Lai, Institute of Atomic and Molecular Sciences (Taiwan); Chih-Yi Liu, National Cheng Kung Univ. (Taiwan); Yuh-Lin Wang, Academia Sinica (Taiwan) . . . . . [8204-140]

15.20: **Programmable logic controller optical fibre sensor interface module**, Gary Allwood, Graham Wild, Steven Hinckley, Edith Cowan Univ. (Australia). . . . . [8204-24]

15.40: **Numerical modelling of interrogation systems for optical fibre Bragg grating sensors**, Daniel Oswald, Steven Richardson, Graham Wild, Edith Cowan Univ. (Australia) . . . . . [8204-25]

Refreshment Break . . . . . 16.00 to 16.20

SESSION 8

Room: EN 102 . . . . . Mon. 16.20 to 18.00

Plasmonics I

16.20: **Plasmon-based optical trapping of nanoparticles: fluorescence spectroscopic study** *(Invited Paper)*, Yasuyuki Tsuboi, Hokkaido Univ. (Japan). . . . . [8204-26]

17.00: **Controlling light confinement by plasmonic nanostructures**, Krystyna Drozdowicz-Tomsia, Henrique T. M. C. M. Baltar, Ewa M. Goldys, Macquarie Univ. (Australia) . . . . . [8204-27]

17.20: **Vertical plasmonic nanowires for 3D nanoparticle trapping**, Jingzhi Wu, Xiaosong Gan, Swinburne Univ. of Technology (Australia) . . . . . [8204-28]

17.40: **Enhancement of stimulated Raman scattering in Nd^{3+}-doped terrace-microspheres**, Hiyori Uehara, Tetsuo Kishi, Tetsuji Yano, Shuichi Shibata, Tokyo Institute of Technology (Japan) . . . . . [8204-29]

SESSION 9

Room: EN 103 . . . . . Mon. 14.20 to 15.40

Solar Cells I

14.20: **Effect of back dielectric layer thickness between silver nanoparticles and silicon layer for tailored plasmonic enhancement in thin film amorphous silicon solar cells**, Baohua Jia, Jhantu K. Saha, Xi Chen, Swinburne Univ. of Technology (Australia); Qi Qiao, Yongqian Wang, Zhengrong Shi, Suntech Power Holdings Co., Ltd. (China); Min Gu, Swinburne Univ. of Technology (China) . . . . . [8204-30]

14.40: **Organic solar cells: evaluation of the stability of P3HT using time-delayed degradation**, Chung-How Poh, Paul C. Dastoor, Warwick Belcher, Univ. of Newcastle (Australia) . . . . . [8204-31]

15.00: **Reduced intrinsic layer thickness of thin film amorphous silicon solar cells enabled by the plasmonic effect from silver nanospheres**, Jhantu K. Saha, Xi Chen, Baohua Jia, Swinburne Univ. of Technology (Australia); Qi Qiao, Yongqian Wang, Zhengrong Shi, Suntech Power Holdings Co., Ltd. (China); Min Gu, Swinburne Univ. of Technology (Australia) [8204-32]

15.20: **Self-assembly molecular materials for photovoltaic devices**, V. A. L. Roy, City Univ. of Hong Kong (Hong Kong, China). . . . . [8204-33]

Refreshment Break . . . . . 15.40 to 16.20

SESSION 10

Room: EN 103 . . . . . Mon. 16.20 to 17.40

Solar Cells II

16.20: **Band structures and optical gain of strained GaAsPN/GaP and GaAsPN/GaPN quantum wells**, Weijun Fan, Nanyang Technological Univ. (Singapore) . . . . . [8204-35]

16.40: **A comparison of silicon and germanium photovoltaic power converters for power over fibre**, Gary Allwood, Graham Wild, Steven Hinckley, Edith Cowan Univ. (Australia) . . . . . [8204-36]

17.00: **Method for high efficiency of amprphous silicon solar cell using sequential ion-beam assist method,** Tomonori Watariguchi, Kumamoto Univ. (Japan). . . . . [8204-37]

17.20: **A comparison between Si and GaAs nanowire-based photovoltais devices,** S. Abdellatif, The British Univ. in Egypt (Egypt); K. A. Kirah, Univ. Française d'Égypt (Egypt); H. Ghali, The British Univ. in Egypt (Egypt); W. Anis, Ain Shams Univ. (Egypt) . . . . . [8204-142]

Conference 8204

Room: ATC Foyer . . . . . Mon. 18.00 to 19.30

Poster Session

All registered attendees are invited to attend the Poster/Reception. This event will provide the opportunity to meet with colleagues, network, and view the poster papers. The authors will be present at their posters to answer questions and provide in-depth discussions regarding their work. Attendees are required to wear their conference registration badges.

Poster authors may set-up their poster papers between 09.00 and 17.00 on Monday. Immediately after the Poster Session/Reception is over, authors must take down their posters and materials. All posters left up after that will be considered unwanted and will be discarded. SPIE assumes no responsibility for materials behind.

Development of electric power generation system for bio-MEMS device by using a new bio-compatible piezoelectric material $MgSiO_3$, Hideyuki Kuribayashi, Yusuke Morita, Eiji Nakamachi, Doshisha Univ. (Japan) [8204-85]

Dielectrophoresis enabled particle sorting achieved in a microfluidic device, Chen Zhang, Mahaveer D. Kurkuri, Tushar Kumeria, Dusan Losic, Univ. of South Australia (Australia) . . . . . [8204-90]

Compact wideband filter element based on complementary split-ring resonators, Ali K. Horestani, The Univ. of Adelaide (Australia); Zahra Shaterian, Aerospace Research Institute (Iran, Islamic Republic of); Withawat Withayachumnankul, Christophe Fumeaux, Said F. Al-Sarawi, Derek Abbott, The Univ. of Adelaide (Australia) . . . . . [8204-95]

Performance improvement of high-thickness photopolymers for holographic data storage applications, Manuel Ortuño, Sergi Gallego, Andrés Márquez, Cristian Neipp, Inmaculada Pascual, Augusto Beléndez, Univ. de Alicante (Spain) . . . . . [8204-109]

Analysis of optical frequency signal transmission through whispering gallery mode, Masashi Fukuhara, Yen Ling Yu, Takuma Aihara, Kyohei Nakagawa, Toyohashi Univ. of Technology (Japan); Kenzo Yamaguchi, Kagawa Univ. (Japan); Mitsuo Fukuda, Toyohashi Univ. of Technology (Japan). . . . . [8204-110]

Evaporative self-assembly of gold nanorings via a surface acoustic wave atomization, Khee Ng, Aisha Qi, James R. Friend, Leslie Y. Yeo, Wenlong Cheng, Monash Univ. (Australia). . . . . [8204-111]

Reduction of obtainable resistivity in transparent conducting impurity-doped ZnO thin films deposited with a very thin buffer layer by magnetron sputtering, Tadatsugu Minami, Toshihiro Miyata, Tomoyasu Hirano, Jun-ichi Nomoto, Kanazawa Institute of Technology (Japan). . . . . [8204-112]

PL and EL characteristics in Bi- and rare earth-co-doped $(La1-XGaX)_2O_3$ phosphor thin films prepared by rf magnetron sputtering, Toshihiro Miyata, Tadatsugu Minami, Kanazawa Institute of Technology (Japan) . . . . [8204-113]

Strain-resistance relationship of gold conductors in flexible elastomeric devices, Ben M. Durnin, Charan M. Shah, Madhu Bhaskaran, Sharath Sriram, RMIT Univ. (Australia) . . . . . [8204-114]

Multiwalled carbon nanotube poly(N-isopropylacrylamide) hybrids: an innovative approach to smart nanocomposites, Oskar Majewski, Nicolas H. Voelcker, Amanda V. Ellis, Narasimha M. Bandaru, Flinders Univ. (Australia); Helmut W. Thissen, Commonwealth Scientific and Industrial Research Organisation (Australia) . . . . . [8204-115]

Upconversion luminescence dynamics of $NaYF_4$:Yb,Er/Tm nanocrystals, Jiangbo Zhao, Dayong Jin, James A. Piper, Judith M. Dawes, Ewa M. Goldys, Macquarie Univ. (Australia) . . . . . [8204-116]

Detection of matrix metalloproteinase-1 by porous silicon biosensor, Fransiska S. H. Krismastuti, Stephanie Pace, Andrew O. Jane, Martin J. Sweetman, Nicolas H. Voelcker, Flinders Univ. (Australia); Tim R. Dargaville, Queensland Univ. of Technology (Australia) . . . . . [8204-117]

Quantum dot nanocomposite and its application to white LED, Chang-Soo Han, Korea Institute of Machinery & Materials (Korea, Republic of); Heetae Jung, KAIST (Korea, Republic of) . . . . . [8204-118]

Biosensor based on refletometric interference: integration into microfluidics, Tushar Kumeria, Mahaveer D. Kurkuri, Chen Zhang, Dusan Losic, Univ. of South Australia (Australia) . . . . . [8204-119]

Passive-matrix driving of electrochromic display employing hyperbranched viologen polymer film, Sunnam Kim, Kumamoto Univ. (Japan) and Nissan Chemical Industries, Ltd. (Japan) . . . . . [8204-120]

On the simple theoretical analysis of the Einstein relation in quantum wells, quantum well wires, and quantum dots, Subhamoy Singha Roy, JIS College of Engineering (India) . . . . . [8204-122]

Spatially differential particle detection method for lifetime prediction of vaccum system, Masashi Yamamoto, Hiroshi Kubota, Kumamoto Univ. (Japan). . . . . [8204-123]

An extended analytical model to simulate an optical coherence tomography system with a quasi-stationary optical delay line, Paul V. Jansz, Graham Wild, Stephen Richardson, Steven Hinckley, Edith Cowan Univ. (Australia). . . . . [8204-124]

Chemical and biomolecule patterning on 2D surfaces using atmospheric pressure microcavity plasma array devices, Sameer Al-Bataineh, Endre J. Szili, Gillies Desmet, Paul Ruschitzka, Philipp Gruner, Craig Priest, Hans J. Griesser, Univ. of South Australia (Australia); Nicolas H. Voelcker, Flinders Univ. (Australia); David Steele, Robert D. Short, Univ. of South Australia (Australia). . . . . [8204-125]

Immobilization of enzyme (DAAO) on hybrid nanoporous MCF, SBA-15, and MCM-41 materials, Phi Q. Tien, Le G. Hy, Vu A. Tuan, Phan T. H. Thao, Pham T. Huyen, Duc-Dao Canh, Dang T. Phuong, Vietnamese Academy of Science and Technology (Viet Nam) . . . . . [8204-126]

Surface modification of poly(dimethylsiloxane) (PDMS) with DNA capture-probes for potential use in microfluidic forensic analysis systems, Leigh Thredgold, Dmitriy Khodakov, Amanda V. Ellis, Hilton Kobus, Adrian Linacre, Claire Lenehan, Flinders Univ. (Australia) . . . . . [8204-127]

Designing and building a photonic nanotechnology facility: principle guidelines, Sarah Beswick, Andrew Smith, Dru Morrish, Daniel J. Day, Saulius Juodkazis, Min Gu, Swinburne Univ. of Technology (Australia) . . . . [8204-128]

Photonic and plasmonic waveguide sensors, Anthony P. Hope, RMIT Univ. (Australia); Arnan Mitchell, RMIT Univ. (Australia) and ARC Ctr. of Excellence for Ultrahigh-Bandwidth Devices for Optical Systems (Australia); Thach G. Nguyen, RMIT Univ. (Australia) . . . . . [8204-129]

New heteroarylamine interlayer for green phosphorescent organic light-emitting diodes by solution process, Chan-Jae Lee, Jeong-No Lee, Min-Gi Kwak, Korea Electronics Technology Institute (Korea, Republic of); Dae-Hyuk Choi, Sun-Pil Hwang, Duksan Hi-Metal Co. Ltd. (Korea, Republic of)[8204-130]

Morphology and optical study of dye-doped TiO_2-SiO_2 thin films, Arvind K. Gathania, Naresh Dhiman, Ankita Sharma, National Institute of Technology, Hamirpur (India); Bhanu P. Singh, Indian Institute of Technology Bombay (India). . . . . [8204-131]

Writing and erasure of photorefractive structures in lithium niobate by direct laser writing technique, Vygantas Mizeikis, Shizuoka Univ. (Japan); Domas Paipulas, Vilnius Univ. (Lithuania); Ricardas Buivydas, Swinburne Univ. of Technology (Australia). . . . . [8204-132]

Brightness uniformity of organic light-emitting diodes lighting by assistant conduction line and power input position, Chan-Jae Lee, Min-Gi Kwak, Jeong-No Lee, Korea Electronics Technology Institute (Korea, Republic of) . . . . . [8204-133]

Fabry-Perot sensors: microfluidic channels and transparent membranes, Philipp Trocha, Univ. Konstanz (Germany); Gediminas Gervinskas, Ricardas Buividas, Swinburne Univ. of Technology (Australia); Markus Schmotz, Elke Scheer, Univ. Konstanz (Germany); Saulius Juodkazis, Swinburne Univ. of Technology (Australia); Paul A. Leiderer, Univ. of Konstanz (Germany) . . . . . [8204-134]

Simulations of coupled resonator optical waveguides in photonic crystals constructed with a portion of 12-fold photonic, Yun Shen, Nanchang Univ. (China) . . . . . [8204-135]

Sub-nm-scale precision stage using nonresonant-ultrasonic motor for making of nanodevices, Yuki Soh, Hiroshi Kubota, Kumamoto Univ. (Japan). . . . . [8204-136]

Controlling cell-material interactions using coatings with controlled polymer architectures, Peter M. Koegler, Commonwealth Scientific and Industrial Research Organisation (Australia) and Reutlingen Univ. (Germany); Paul Pasic, Graham Johnson, Penny Bean, Laurence Meagher, Commonwealth Scientific and Industrial Research Organisation (Australia); Guenter Lorenz, Reutlingen Univ. (Germany); Helmut W. Thissen, Commonwealth Scientific and Industrial Research Organisation (Australia). . . . . [8204-137]

Combination of a nano-coordinate measuring machine with a low-coherent digital holographic microscopy sensor for large-scale measurements, Stephan Stuerwald, Fraunhofer-Institut für Produktionstechnologie (Germany); Robert Schmitt, Fraunhofer-Institut für Produktionstechnologie (Germany) and RWTH Aachen Univ. (Germany) . . . . . [8204-138]

Tuesday 6 December

SESSION 11

Room: ATC 101 . . . . . Tues. 09.00 to 10.00

Plenary Session on Modern Challenges: Materials for Photonics

09.00: **Photonic Band-Gap Materials: Light Trapping Crystals**, Sajeev John, Univ. of Toronto (Canada) . . . . . [8204-202]

SESSION 12

Room: ATC 101 . . . . . Tues. 10.00 to 13.00

Modern Challenges: Materials for Photonics

10.00: **Functional optical devices using highly ordered hole array architectures of anodic porous alumina** *(Invited Paper)*, Hideki Masuda, Tokyo Metropolitan Univ. (Japan) and Kanagawa Academy of Science and Technology (Japan); Toshiaki Kondo, Kanagawa Academy of Science and Technology (Japan); Kazuyuki Nishio, Tokyo Metropolitan Univ. (Japan) . . . . . [8204-38]

10.40: **Discovering new properties and applications of ultrafast laser nanostructuring in transparent materials** *(Invited Paper)*, Peter G. Kazansky, Martynas Beresna, Mindaugas Gecevicius, Univ. of Southampton (United Kingdom) . . . . . [8204-39]

Refreshment Break . . . . . 11.20 to 11.40

11.40: **Singular photonics based on liquid crystals topological defects** *(Invited Paper)*, Etienne Brasselet, Univ. Bordeaux 1 (France) . . . . . [8204-40]

12.20: **Tailoring of photonic structures by femtosecond laser lithography** *(Invited Paper)*, Vygantas Mizeikis, Shizuoka Univ. (Japan); Vytautas Purlys, Domas Paipulas, Vilnius Univ. (Lithuania); Lina Maigyte, Kestutis Staliunas, Univ. Politechnica de Catalunya (Spain) . . . . . [8204-41]

Lunch Break . . . . . 13.00 to 14.20

Sessions [13, 14] [15, 16] [17, 18] [19, 20] run concurrently.

SESSION 13

Room: ATC 101 . . . . . Tues. 14.20 to 16.00

Laser Fabrication III

14.20: **Large-area high-throughput reproduction of the Morpho butterfly's color by laser ablation for practical applications** *(Invited Paper)*, Akira Saito, Masaru Yonezawa, Jun-ichi Murase, Megumi Akai-Kasaya, Yuji Kuwahara, Osaka Univ. (Japan) . . . . . [8204-42]

15.00: **Laser 3D structuring of integrated/bifunctional microoptical componentsl**, Mangirdas Malinauskas, Albertas Žukauskas, Kristupas Tikuišis, Roaldas Gadonas, Vilnius Univ. (Lithuania) . . . . . [8204-43]

15.20: **Dynamic generation of diffraction-limited azimuthal multifocal arrays for large-area three-dimensional photonic fabrication**, Han Lin, Min Gu, Swinburne Univ. of Technology (Australia) . . . . . [8204-44]

15.40: **Laser printing of microstructures**, Ludovic Rapp, Anne Patricia B. Alloncle, Philippe C. Delaporte, Lasers, Plasmas et Procédés Photoniques (France) . . . . . [8204-45]

Refreshment Break . . . . . 16.00 to 16.20

SESSION 14

Room: ATC 101 . . . . . Tues. 16.20 to 18.20

Laser Fabrication IV

16.20: **Femtosecond laser-solids interactions: theory, experiments, and applications**, Eugene G. Gamaly, The Australian National Univ. (Australia) . . . . . [8204-46]

17.00: **Non-contact quantification of laser micro-impulse in water by atomic force microscopy and its application for biomechanics** *(Invited Paper)*, Yoichiroh Hosokawa, Nara Institute of Science and Technology (Japan) . . . . . [8204-47]

17.40: **Imcomparable intensity increase of x-ray from gold nano-colloidal droplets when irradiated by focused femtosecond laser pulses in air** *(Invited Paper)*, Koji Hatanaka, The Univ. of Tokyo (Japan) . . . . . [8204-48]

SESSION 15

Room: EN 101 . . . . . Tues. 14.20 to 16.00

Microfluidics III

14.20: **Bio-inspired microfluidic approaches for bimimetic microsystem** *(Invited Paper)*, Jianhua Qin, Dalian Institute of Chemical Physics (China) . . . . [8204-49]

15.00: **Microfluidic device for high-yield pairing and fusion of stem cells with somatic cells**, Murat Gel, Commonwealth Scientific and Industrial Research Organisation (Australia); Kunio Hirano, Institute for Frontier Medical Sciences, Kyoto Univ. (Japan); Hidehiro Oana, Univ. of Tokyo (Japan); Hidetoshi Kotera, Kyoto Univ. (Japan); Takashi Tada, Institute for Frontier Medical Sciences, Kyoto Univ. (Japan); Masao Washizu, Univ. of Tokyo (Japan) . . . . . [8204-50]

15.20: **Microfluidic chip containing porous gradient for chemotaxis study**, Aswan Al-Abboodi, Ricky Tjeung, Pauline Doran, Leslie Y. Yeo, James R. Friend, Peggy Chan, Monash Univ. (Australia) . . . . . [8204-51]

15.40: **Dielectrophoretic manipulation of embryonic nematodes in a microfluidic system**, Khashayar Khoshmanesh, Deakin Univ. (Australia); Nimrod Kiss, The Univ. of Auckland (New Zealand); Saeid Nahavandi, Deakin Univ. (Australia); Clive W. Evans, The Univ. of Auckland (New Zealand); Jonathan M. Cooper, Univ. of Glasgow (United Kingdom); David E. Williams, Donald Wlodkowic, The Univ. of Auckland (New Zealand) . . . . . [8204-52]

Refreshment Break . . . . . 16.00 to 16.20

SESSION 16

Room: EN 101 . . . . . Tues. 16.20 to 17.40

Microfluidics IV

16.20: **On-chip surface acoustic-wave driven microfluidic motors**, Richie J. Shilton, Leslie Y. Yeo, James R. Friend, Monash Univ. (Australia) . . . [8204-53]

16.40: **Novel mixing of fluids in paper using SAW**, Amgad R. Rezk, James R. Friend, Leslie Y. Yeo, Monash Univ. (Australia) . . . . . [8204-55]

17.00: **An integrated hand-held device with on-chip CCD for multiplex fingerprinting of chemical warfare agents**, Karolina Petkovic-Duran, Anthony Swallow, Fiona Glenn, Brett A. Sexton, Sheng Le, Yonggang Zhu, Commonwealth Scientific and Industrial Research Organisation (Australia); Justin Doward, Defence Science and Technology Organisation (Australia) . . . . . [8204-56]

17.20: **Optimised surface acoustic-wave atomisation via amplitude modulation**, Anushi Rajapaksa, Aisha Qi, James R. Friend, Leslie Y. Yeo, Monash Univ. (Australia) . . . . . [8204-57]

Conference 8204

Sessions [13, 14] [15, 16] [17, 18] [19, 20] run concurrently.

SESSION 17

Room: EN 102 . . . . . Tues. 14.20 to 16.00

Plasmonics II

14.20: **Plasmonic core-shell nanoparticles at varying excitation levels: from fluorescence enhancement toward lasing threshold** *(Invited Paper)*, Ewa M. Goldys, Wei Deng, Macquarie Univ. (Australia) . . . . . [8204-58]

15.00: **Tailoring plasmonic nanoparticles and fractal patterns**, Lorenzo Rosa, Saulius Juodkazis, Swinburne Univ. of Technology (Australia) [8204-59]

15.20: **Sputtering-growth of seeded Au nanoparticles for nanogap-assisted surface-enhanced Raman scattering (SERS) biosensing**, Chit Yaw Fu, National Univ. of Ireland, Galway (Ireland) and Agency for Science Technology and Research (Singapore); U. S. Dinish, Shashi Rautela, Singapore Bioimaging Consortium (Singapore); Malini C. Olivo, National Univ. of Ireland, Galway (Ireland) . . . . . [8204-60]

15.40: **Broadband optical antenna with a disk structure**, Ivan Wang, The Hong Kong Polytechnic Univ. (Hong Kong, China) . . . . . [8204-61]

Refreshment Break . . . . . 16.00 to 16.20

SESSION 18

Room: EN 102 . . . . . Tues. 16.20 to 18.00

Plasmonics III

16.20: **Plasmonic nanofocusing by axicon-shape Kretschmann configuration** *(Invited Paper)*, Atsushi Ono, Hiroki Sano, Wataru Inami, Keisuke Kato, Yoshimasa Kawata, Shizuoka Univ. (Japan) . . . . . [8204-62]

17.00: **Depletion of gold nanorods of plasmonic device applications**, Adam B. Taylor, James Chon, Timothy Chow, Swinburne Univ. of Technology (Australia) . . . . . [8204-63]

17.20: **Imaging nano-diamonds using a far-field plasmonic lens**, Priyamvada Venugopalan, Xiangping Li, Stefania A. Castelletto, Min Gu, Swinburne Univ. of Technology (Australia) . . . . . [8204-64]

17.40: **Generation of surface plasmon power flows on metallic layers**, Sewoong Oh, Seoul National Univ. (Korea, Republic of); Hwi Kim, Korea Univ. (Korea, Republic of); Junghyun Park, Seong-Woo Cho, Byoungho Lee, Seoul National Univ. (Korea, Republic of) . . . . . [8204-65]

SESSION 19

Room: EN 103 . . . . . Tues. 14.20 to 16.00

Materials

14.20: **Surface-enhanced Raman scattering in three-dimensional ordered Au nanoparticles in anodic porous alumina matrix**, Toshiaki Kondo, Kanagawa Academy of Science and Technology (Japan); Kazuyuki Nishio, Hideki Masuda, Tokyo Metropolitan Univ. (Japan) and Kanagawa Academy of Science and Technology (Japan) . . . . . [8204-66]

14.40: **Impedance study of single nanopores and nanopore arrays for biosensing application**, Krishna Kant, Joe G. Shapter, Flinders Univ. (Australia); Craig Priest, Dusan Losic, Univ. of South Australia (Australia) . . . . . [8204-67]

15.00: **Lithography of porous materials for device fabrication**, Paolo Falcaro, Anita J. Hill, Commonwealth Scientific and Industrial Research Organisation (Australia) . . . . . [8204-68]

15.20: **Manganese oxide and copper oxide decorated carbon nanotubes electrodes for supercapacitors**, Mohan Raja, King Saud Univ. (Saudi Arabia) . . . . . [8204-69]

15.40: **Comprehensive study of ZnO nanostructures grown using chemical bath deposition: from growth to application**, Zelalem Z. N. Urgessa, Munyaradzi D. Murape, Nelson Mandela Metropolitan Univ. (South Africa); Oluwafemi S. Oluwatobi, Walter Sisulu Univ. (South Africa); Andre Veneter, Magnus C. Wagener, Reinhardt J. R. Botha, Nelson Mandela Metropolitan Univ. (South Africa) . . . . . [8204-70]

Refreshment Break . . . . . 16.00 to 16.20

SESSION 20

Room: EN 103 . . . . . Tues. 16.20 to 17.40

ODS and PhC

16.20: **Photo-inhibition enabled superresolution optical data storage in photoreduction polymers**, Xiangping Li, Yaoyu Cao, Min Gu, Swinburne Univ. of Technology (Australia) . . . . . [8204-71]

16.40: **Photopolymers comparison for optical data storage applications and relieve diffractive optical elements recorded onto photopolymers**, Sergi Gallego, Andrés Márquez, Manuel Ortuño, Cristian Neipp, Augusto Beléndez, Inmaculada Pascual, Univ. de Alicante (Spain) . . . . . [8204-72]

17.00: **GaN-based UV photodetectors with monolithically integrated ITO square lattice photonic crystal**, Reyhaneh Soltanmoradi, Royal Institute of Technology (Sweden); Qin Wang, Acreo AB (Sweden); Min Qiu, Royal Institute of Technology (Sweden); Sang-Mook Kim, Jong Hyeob Baek, Korea Photonics Technology Institute (Korea, Republic of); Vytautas Liuolia, Saulius Marcinkevicius, Royal Institute of Technology (Sweden); Jan Y. Andersson, Acreo AB (Sweden) . . . . . [8204-73]

17.20: **A novel photonic crystal waveguide-based symmetric-Mach-Zehnder-type ultrafast all-optical switch using quantum dot semiconductor optical amplifier**, Xiaoming Li, Tao Wang, Wei Yan, Haibo Zheng, Wuhan National Lab. for Optoelectronics (China) . . . . . [8204-74]

Wednesday 7 December

SESSION 21

Room: ATC 101 . . . . . Wed. 09.00 to 10.00

Plenary Session on Modern Challenges: Mechanisms

09.00: **Nanophotonics: Thermal and Solar Applications**, Shanhui Fan, Stanford Univ. (United States). . . . . [8204-203]

SESSION 22

Room: ATC 101 . . . . . Wed. 10.00 to 13.00

Modern Challenges: Mechanisms

10.00: **Dynamic imaging of surface acoustic waves in phononic crystals** *(Invited Paper)*, Oliver B. Wright, Hokkaido Univ. (Japan) . . . . . [8204-75]

10.40: **Adaptive control on laser-induced refractive index changes for 3D optical functions in bulk optical glasses** *(Invited Paper)*, Razvan Stoian, Lab. Hubert Curien (France) . . . . . [8204-76]

Refreshment Break . . . . . 11.20 to 11.40

11.40: **Nanoaquarium: integrated microchips fabricated by ultrafast laser for understanding phenomena and functions of microorganisms** *(Invited Paper)*, Koji Sugioka, Yasutaka Hanada, Katsumi Midorikawa, Hiroyuki Kawano, Ikuko S. Ishikawa, Atsushi Miyawaki, RIKEN (Japan) . . . . . [8204-77]

12.20: **Laser microprocessing and nanoengineering of large-area functional micro/nanostructures** *(Invited Paper)*, Minghui Hong, National Univ. of Singapore (Singapore) . . . . . [8204-78]

Lunch Break . . . . . 13.00 to 14.20

Sessions [23, 24] [25] [26, 27] [28, 29] run concurrently.

SESSION 23

Room: ATC 101 . . . . . Wed. 14.20 to 15.40

Electro-active Materials

14.20: **First-principles study on novel lead-free piezoelectric materials**, Yasutomo Uetsuji, Osaka Institute of Technology (Japan); Kazuyoshi Tsuchiya, Tokai Univ. (Japan); Eiji Nakamachi, Doshisha Univ. (Japan) . . . . . [8204-79]

14.40: **Design of biocompatible high-piezoelectric $BaTiO_3$ with additives**, Kazuyoshi Tsuchiya, Yuya Akagawa, Tokai Univ. (Japan); Yasutomo Uetsuji, Osaka Institute of Technology (Japan); Eiji Nakamachi, Doshisha Univ. (Japan). . . . . [8204-80]

15.00: **Switchable and electroactive polymer brushes grafted from polythiophene backbones for optical applications**, Yiwen Pei, Lisa T. Strover, The Univ. of Auckland (New Zealand); Jadranka Travas-Sejdic, David E. Williams, The Univ. of Auckland (New Zealand) and MacDiarmid Institute for Advanced Materials and Nanotechnology (New Zealand) . . . . . [8204-81]

15.20: **Electroactive polymer brushes for stimuli-responsive surfaces**, Lisa T. Strover, The Univ. of Auckland (New Zealand) and MacDiarmid Institute for Advanced Materials and Nanotechnology (New Zealand); Jenny Malmstrom, The Univ. of Auckland (New Zealand); Jadranka Travas-Sejdic, The Univ. of Auckland (New Zealand) and MacDiarmid Institute for Advanced Materials and Nanotechnology (New Zealand) . . . . . [8204-82]

Refreshment Break . . . . . 15.40 to 16.20

SESSION 24

Room: ATC 101 . . . . . Wed. 16.20 to 17.40

MEMS

16.20: **Active control of lateral leakage in thin-ridge silicon-on-insulator waveguide structures**, Naser Dalvand, Thach G. Nguyen, RMIT Univ. (Australia); Ravi S. Tummidi, Thomas L. Koch, Lehigh Univ. (United States); Arnan Mitchell, RMIT Univ. (Australia). . . . . [8204-83]

16.40: **Ten ways to destroy a prototype MEMS device**, Stephen P. van der Velden, Ian G. Powlesland, Defence Science and Technology Organisation (Australia); Jugdutt Singh, La Trobe Univ. (Australia) . . . . . [8204-84]

17.00: **Process flow configuration for MEMS/NEMS device manufacturing**, Kai Hahn, Thilo Schmidt, Rainer Brueck, Univ. Siegen (Germany); Dirk Ortloff, Process Relations GmbH (Germany); Matthias Mielke, Univ. Siegen (Germany) . . . . . [8204-86]

17.20: **Modeling and simulation of cantilever beam for optimal placement of piezoelectric actuators for maximum energy harvesting**, Rakesh H. Haldkar II, Abhay M. Khalatkar, Vijay K. Gupta, PDPM IIITDM Jabalpur (India). . . . . [8204-87]

SESSION 25

Room: EN 101 . . . . . Wed. 14.20 to 16.00

Microfluidics V

14.20: **Testing fungal thigmotropism with combinatorial microfluidic networks** *(Invited Paper)*, Radu C. Mocanasu, Marie Held, Univ. of Liverpool (United Kingdom); Falco C. M. J. M. van Delft, A. F. Jos J. van den Ven, Jaap Snijder, Harold H. A. J. Roosen, Philips Research Nederland B.V. (Netherlands); Clive Edwards, Dan V. Nicolau, Univ. of Liverpool (United Kingdom) . . . . . [8204-88]

15.00: **Peculiarities of microfluidic flows, generated by surface acoustic waves, and quantitative assessment**, Ofer Manor, Leslie Y. Yeo, James R. Friend, Monash Univ. (Australia) . . . . . [8204-89]

15.20: **Integration of microplasma and microfluidic technologies for localised microchannel surface modification**, Endre J. Szili, Sameer Al-Bataineh, Craig Priest, Philipp Gruner, Paul Ruschitzka, Univ. of South Australia (Australia); James W. Bradley, Univ. of Liverpool (United Kingdom); John Ralston, David Steele, Robert D. Short, Univ. of South Australia (Australia). . . . . [8204-91]

15.40: **Applications of advanced functional materials in microfluidic technology**, Weijia Wen, The Hong Kong Univ. of Science and Technology (Hong Kong, China) . . . . . [8204-92]

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Sessions [23, 24] [25] [26, 27] [28, 29] run concurrently.

SESSION 26

Room: EN 102 . . . . . Wed. 14.20 to 15.20

Plasmonics IV

14.20: **Plasmonics and metamaterials for biosensing** *(Invited Paper)*, Andrei V. Kabashin, l'Univ. de la Méditerranée-Aix-Marseille II (France) . . . . [8204-93]

15.00: **Effect of nanoholes on the plasmonic properties of star nanostructures**, Shaoli Zhu, Andrew K. Whittaker, Idriss Blakey, The Univ. of Queensland (Australia). . . . . [8204-94]

Refreshment Break . . . . . 15.20 to 16.20

SESSION 27

Room: EN 102 . . . . . Wed. 16.20 to 17.40

Future Materials

16.20: **Graphene photonics: light creation, modulation, and detection**, Qiaoliang Bao, Kian Ping Loh, National Univ. of Singapore (Singapore); Ding Yuan Tang, Nanyang Technological Univ. (Singapore) . . . . . [8204-97]

16.40: **A review on: carbon-based materials as on-chip interconnects**, Hatef Sadeghi, Univ. Teknologi Malaysia (Malaysia); Jean-Michel Redouté, Monash Univ. (Australia) . . . . . [8204-98]

17.00: **Development of compact control system with neck myoelectric signal for welfare applications**, Katsutoshi Ooe, Nagoya Univ (Japan). . . . . [8204-99]

17.20: **Optical fibre communications and sensing system experiments for undergraduate photonics laboratories**, Graham Wild, Geoff Swan, Edith Cowan Univ. (Australia) . . . . . [8204-100]

SESSION 28

Room: EN 103 . . . . . Wed. 14.20 to 15.40

Microscopy I

14.20: **Thermal imaging of micro-structured polymers with high-speed infrared camera**, Junko Morikawa, Toshimasa Hashimoto, Tokyo Institute of Technology (Japan) . . . . . [8204-101]

14.40: **Image correlation spectroscopy of gold nanoparticle/polymer nanocomposite materials**, James Chon, Timothy Chow, Swinburne Univ. of Technology (Australia) . . . . . [8204-102]

15.00: **Tailoring the photoluminescence of NV centres in nanodiamonds for superresolution imaging**, Betty Kouskousis, Stefania A. Castelletto, Xiangping Li, Min Gu, Swinburne Univ. of Technology (Australia) . . [8204-103]

15.20: **Coherent noise reduction in digital holographic phase contrast microscopy by varying the reference wave**, Yizhuo Zhang, Dayong Wang, Zhiwei Zhou, Yunxin Wang, Beijing Univ. of Technology (China) . . . [8204-104]

Refreshment Break . . . . . 15.40 to 16.20

SESSION 29

Room: EN 103 . . . . . Wed. 16.20 to 17.40

Microscopy II

16.20: **Magnetic microscopy potential of hybrid metamaterials using silicon particles and split-ring resonators**, Kwaku Eason, Boris Luk'yanchuk, A*STAR - Data Storage Institute (Singapore); Andrey E. Miroshnichenko, Yuri S. Kivshar, The Australian National Univ. (Australia) . . . . . [8204-105]

16.40: **In vivo imaging of laser irradiation effects in seeds by OCT**, Steven Hinckley, Natalia Kovalenko, Paul V. Jansz, Edith Cowan Univ. (Australia). . . . . [8204-106]

17.00: **Simulation of crosstalk and quantum efficiency in high-resolution UV-blue imaging arrays**, Paul V. Jansz, Steven Hinckley, Edith Cowan Univ. (Australia). . . . . [8204-107]

17.20: **Long-term cell inspection using an inverse digital holographic microscope**, Dayong Wang, Yizhuo Zhang, Yunxin Wang, Shiquan Tao, Beijing Univ. of Technology (China) . . . . . [8204-108]

Index of Authors, Chairs, and Committee Members

Names shown in bold are **SPIE Members**

Index of Authors, Chairs, and Committee Members

General Information

Registration Policies and Information

Onsite Registration Hours / Badge Pick-Up

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Sunday 4 December . . . . . 16.00 to 19.00

Monday 5 December . . . . . 08.00 to 17.00

Tuesday 6 December . . . . . 08.00 to 17.00

Wednesday 7 December . . . . . 08.00 to 11.00

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- **Bus No. 624** Kew-Chadstone – Oakleigh (via Carnegie), travels along Auburn Rd about a 10-minute walk to Campus.
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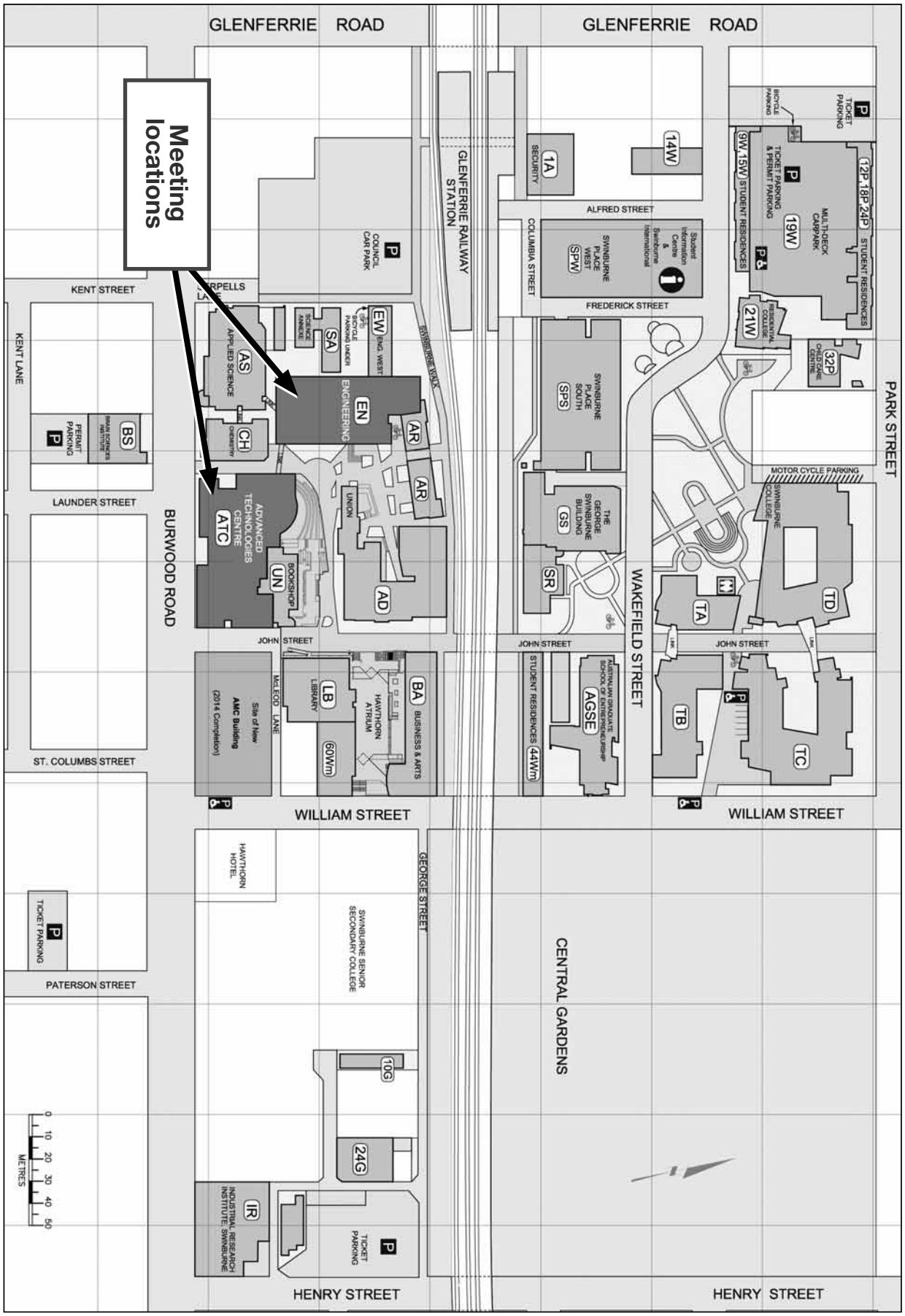

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