

2017

PUBLICATIONS 2017

Syed Ghazi Sarwat, Pascal Gehring, Gerardo Rodriguez Hernandez, Jamie H. Warner, G. Andrew D. Briggs, Jan A. Mol, Harish Bhaskaran,

"Scaling Limit of Graphene Nanoelectrodes",

Nano Letters, 2017, 17 (6), pp3688-3693, DOI: 10.1021/acs.nanolett.7b00909

G. Rodriguez-Hernandez, P. Hosseini, C. Rios, C. D. Wright, H. Bhaskaran,

"Mixed-Mode Electro-Optical Operation of Ge₂Sb₂Te₅ Nanoscale Crossbar Devices",

Advanced Electronic Materials 2017, Vol, 17000079, DOI: 10.1002/aelm.201700079

WAFT partner:

V. Karthik Nagareddy, Matthew D. Barnes, Federico Zipoli, Khue T. Lai, Arseny M. Alexeev, Monica Felicia Craciun, and C. David Wright

"Multilevel Ultrafast Flexible Nanoscale Nonvolatile Hybrid Graphene Oxide–Titanium Oxide Memories",

ACS Nano, 2017, 11 (3), pp 3010–3021, DOI: 10.1021/acsnano.6b08668

Xiaochen Wang, Thomas N. Hooper, Amit Kumar, Isobel K. Priest, Yuewen Sheng, Thomas O. M. Samuels, Shanshan Wang, Alex W. Robertson, Mercè Pacios, Harish Bhaskaran, Andrew S. Weller, Jamie H. Warner,

"Oligomeric aminoborane precursors for the chemical vapour deposition growth of few-layer hexagonal boron nitride",

CrystEngComm, 2017, 19, pp 285-294, DOI: 10.1039/C6CE02006B

Matthias Stegmaier, Carlos Ríos, Harish Bhaskaran, C. David Wright, Wolfram H. P. Pernice,

"Nonvolatile All-Optical 1 × 2 Switch for Chipscale Photonic Networks",

Advanced Optical Materials, 2017, 5 (1), 1600346, DOI: 10.1002/adom.201600346

CONFERENCE PROCEEDINGS 2017

Harish Bhaskaran (Oral Invited)

"On-chip phase-change photonic memories and computing",

SPIE Nanoscience + Engineering, 6 - 10 August 2017, San Diego, California United States Meeting, <http://spie.org/op>

Carlos Rios, Zengguang Cheng, Matthias Stegmaier, C. David Wright, Wolfram H.P. Pernice, Harish Bhaskaran,

"Phase-change materials for integrated photonics",

19th Photonics North Conference, June 6-8 2017, Ottawa, Canada

<http://www.photonicsnorth.com/en/sessions>

WAFT partner:

Hazel E. Assender, (INVITED)

“Roll-to-roll processing of flexible electronics: transistors, circuits and devices”,
TECHCON 2017, 60th Annual Technical Conference, April 29-May 4. 2017, Providence, Rhode Island
<https://asm.confex.com/asm/svc2017/webprogram/Paper42657.html>

WAFT partner:

Krishnan Murugappan, Ben Armitage, Merel Lefferts, Tabitha Jones and Martin R. Castell,
“Electrochemical Bridging of Conducting Polymers at the Percolation Threshold for Chemiresistors”,
International Conference on Electrochemical Sensors 2017 June 11-16, Mátrafüred, Hungary
<http://www.matrafured-conference.bme.hu/>

WAFT partner:

Krishnan Murugappan, Merel Lefferts, Ben Armitage, Tabitha Jones and Martin R. Castell,
“Electrochemical Bridging of Conducting Polymers between Gold Nanoparticles at the Percolation Threshold for Chemiresistors”,
Nanosurfaces 2017 - Nano-enhanced surface technologies, 25 May 2017, London, UK
https://www.iom3online.org/iom/frontend/reg/tOtherPage.csp?pageID=352720&ef_sel_menu=2717&eventID=705&eventID=705

Ben Broughton, Lokeshwar Bandhu, Clement Talagrand, Sergio Garcia-Castillo, Mengyang Yang, Harish Bhaskaran and Peiman Hosseini,

“Solid-State Reflective Displays (SRD®) Utilizing Ultrathin Phase-Change Materials”,
Display Week, May 21–26, 2017, Los Angeles, USA
<http://displayweek.org/2017/Program/SpecialTopics.aspx#463573-display-materials-and-processes->

Harish Bhaskaran, (INVITED)

“Phase Change Optoelectronics”
TechConnect World Innovation & National Innovation Summit (15-17 May 2017), Maryland, USA
<http://www.techconnectworld.com/World2017/monday.html>

WAFT partner:

Hazel E. Assender,
“Roll-to-roll manufacture of all-evaporated organic circuits for flexible electronics”,
Printed and Flexible Electronics Congress 2017, 21-22 February, London, UK
<http://www.global-engage.com/event/printed-flexible-electronics/>

Zengguang Cheng, Carlos Rios, Harish Bhaskaran

“Integrated Photonics for Neuromorphic Computing”,
SJTU Future Information Technology International Forum for Yong Scholars (2nd SIFYS-2017), 13-14
April, Shanghai, China
<http://www.seiee.sjtu.edu.cn/forum/index.action?forumid=1>

TUTORIALS 2017

WAFT partner:

Training tutorial for Exeter CDT students on dielectric metamaterials in the framework of EPSRC IAA award (organised by Arseny Alexeev, delivered by the external partner co-investigator).

POSTERS 2017

WAFT Annual Meeting: 5-6 October 2017, Wolfson College, Oxford

AWARDS, RECOGNITIONS 2017

AWARD

Worshipful Company of Ironmongers Prize for Best Part II talk (May 2017):

Tabitha Jones for her talk:

"Conducting polymer percolation networks for gas sensing"

Hetherington Prize Winner (March 2017)

Nhlakanipho Mkhize for his talk:

"High resolution additive manufacturing using direct writing methodologies"

MEDAL

John Yarwood Memorial Medal (2016) was awarded to Martin Castell for meritorious contributions to surface science (November 2016)

PRESTIGIOUS/HONORARY/ADVISORY POSITION TO AN EXTERNAL BODY

Moritz Riede was invited to co-chair the Global Young Academy (December 2016)

ATTRACTED VISITING STAFF OR USER TO YOUR RESEARCH GROUP

Invited speakers for Special Seminars at the University of Oxford Department of Materials:

Prof Phillip Stanley-Marbell, Assistant Professor (UL) and Head of Physical Computation Laboratory, Division of Electrical Engineering, Department of Engineering University of Cambridge

Title of the talk: **Efficient Sensor-Driven Systems for the Physical World**

Date of the special seminar: 9 May 2017

Leon Abelmann

Title of the talk:

Date of the special seminar: 20 March 2017

Prof. Dongsheng Liu, Department of Chemistry, Tsinghua University, Beijing, China,

Title of the talk: **Supramolecular DNA Hydrogels**

Date of the special seminar: 26/09/2016

Academic Visitors at the Advanced Nanoscale Engineering Group:

Matthew C. Levy, Noble Artificial Intelligence Limited, May 2017-May 2018

Andreas Hessel, RWTH Aachen University, Germany, May 2017-July 2017

Recognised Student:

Qiang He, Huazhong University of Science and Technology, February 2017 – January 2018

Andrew Katumba, University of Gent, October 2017- March 2018

Visiting Student:

Emanuele Gemo, University of Exeter, March 2017

2016

PUBLICATIONS 2016

WAFT partner:

S. Garcia-Cuevas Carrillo, GR. Nash, H. Hayat, MJ. Cryan, M. Lemm, H. Bhaskaran, CD. Wright,
“Design of practicable phase-change metadevices for near-infrared absorber and modulator applications”,

Optics Express, 2016, 24 (12), pp 13563-13573, DOI: 10.1364/OE.24.013563

Youmin Rong, Yuewen Sheng, Mercè Pacios, Xiaochen Wang, Zhengyu He, Harish Bhaskaran, and Jamie H. Warner

“Electroluminescence Dynamics across Grain Boundary Regions of Monolayer Tungsten Disulfide”,

ACS Nano, 2016, 10 (1), pp 1093-1100, DOI:10.1021/acsnano.5b06408

WAFT partner:

Tobias J. Octon, V. Karthik Nagareddy, Saverio Russo, Monica F. Craciun, C. David Wright,
“Fast High-Responsivity Few-Layer MoTe₂ Photodetectors”,

Advanced Optical Materials, 2016, DOI: 10.1002/adom.201600290

WAFT partner:

Kermadi, S., Sali, S., Ait Ameer, F., Zougar, L., Boumaour, M., Toumiat, A., Melnik, N.N., Hewak, D.W. and Duta, Anca (2015),

“Effect of copper content and sulfurization process on optical, structural and electrical properties of ultrasonic spray pyrolysed Cu₂ZnSnS₄ thin films”,

Materials Chemistry and Physics, 2016, 169, pp. 96-104, DOI: 10.1016/j.matchemphys.2015.11.035

C. Rios, P. Hosseini, RA. Taylor, H. Bhaskaran,

“Color Depth Modulation and Resolution in Phase-Change Material Nanodisplays”,

Advanced Materials, 2016, DOI: 10.1002/adma.201506238

M. Stegmaier, C. Rios, H. Bhaskaran and WHP. Pernice,

“Thermo-optical Effect in Phase-Change Nanophotonics”,

ACS Photonics, 2016, 3(5), pp 828-835, DOI: 10.1021/acsp Photonics.6b00032

H. Tan, Y. Fan, B Porter, CS Lau, Y Zhou, Z. He, S. Wang, H. Bhaskaran and JH Warner,

“Doping Graphene Transistors Using Vertical Stacked Monolayer WS₂ Heterostructures Grown by Chemical Vapor Deposition”,

ACS Applied Materials & Interfaces, 8 (3), pp 1644–1652, (2016), DOI: 10.1021/acsam.5b08295

S. Wang, M. Pacios, H. Bhaskaran and JH Warner,
“Substrate control for larger area continuous films on monolayer MoS₂ by atmospheric pressure chemical vapor deposition”,
Nanotechnology, 2016, 27(8), pp 1-8, DOI: 10.1088/0957-4484/27/8/085604

M. Pacios, P. Hosseini, Y. Fan, Z. He, O. Krause, J. Hutchison, JH. Warner and H. Bhaskaran,
“Direct manufacturing of ultrathin graphite on three-dimensional nanoscale features”,
Scientific Reports, 2016, 6: 22700, DOI: 10.1038/srep22700

CONFERENCE PROCEEDINGS 2016

P. Hosseini, C. Rios, H. Bhaskaran,
“Reflective Displays - Are Phase Change Materials the New Modulator?”
23rd International Display Workshops in conjunction with Asia Display 2016 (IDW/AD '16),
Fukuoka, Japan, December 7-9, 2016, FMC6 – 1, **invited talk**, <http://www.idw.or.jp/IDW16FP.pdf>

Syed Ghazi Sarwat, Jan Mol, Harish Bhaskaran,
„Graphene Nano-gaps: Performance Limit and Phase Change Memory”,
IUMRS- International Union of Materials Research Society, Bangalore, India, 11-15 Dec

Syed Ghazi Sarwat, Jan Mol, Harish Bhaskaran,
„Ultimate Scaling Limit of Nanoscale Devices: Graphene Nano-gaps”, **poster**,
ISRS- International Symposium of Research Scholars, Chennai, India, 21-23 Dec,

B.F. Porter,
“Additive Nanomanufacturing”
Wearable and Flexible Technologies (WAFT) Scientific Meeting, Somerville College, Oxford, 20
Oct 2016.
http://nanoeng.materials.ox.ac.uk/Advanced_Nanoscale_Engineering_at_Oxford/News.html

H. Bhaskaran,
“Photonic memories based on phase change materials”
E-MRS Fall Meeting, Warsaw, Poland, 19-21 Sept 2016, **invited talk**
<http://www.european-mrs.com/integration-novel-materials-and-devices-silicon-future-technologies-emrs>

WAFT partner:

Lefferts, M.; Wu, C.; Murugappan, K.; Visser, S.; Coombes, S.; Hickey, P.; Brookes, M.; Watt, A.; Castell, M.,

“Percolation Networks of Conductive Polymers for High Sensitivity Vapour Sensing of Explosive Materials”,

16th International Meeting on Chemical Sensors, 10-13 June 2016, Jeju Island, Korea
<http://www.imcs2016.org/program/index4.php>

Peiman Hosseini, Carlos Rios and Harish Bhaskaran,
“Novel Displays, Smart Windows and Other Optoelectronics Using Phase Change Materials”,
MRS Spring Meeting, Phoenix, Arizona, 28 March-1 April 2016, MD4.10.01
Highlighted in MRS’s summary of the most significant Materials research being carried out
across the world in 2016,

http://materials.typepad.com/mrs_meeting_scene/2016/04/md4-phase-change-materials-and-applications.html

<http://epub.knepperpress.com/publication/?i=292778>

C. Rios, M. Stegmaier, CD Wright, WHP. Pernice, and H. Bhaskaran,
„Multi-level storage in non-volatile phase-change nanophotonic memories”
IEEE Photonics Conference (IPC), 2016, Oct. 2-6, Hawaii, USA, DOI: 10.1109/IPCon.2016.7831160
<https://ieeexplore.ieee.org/document/7831160/>

WAFT partner:

Sameer Vajjala Kesava, Moritz Riede’

"In situ monitoring of key thin film parameters of vacuum deposited organic photovoltaic devices",
7th International Conference on Spectroscopic Ellipsometry, 06 - 10 June 2016, Berlin
<https://www.isas.de/en/calendar/events/icse-7>

C. Ríos, M. Stegmaier, P. Hosseini, C.D. Wright, W.H.P Pernice, and H. Bhaskaran.

Integrated All-photonic Data Storage Enabled by Phase-change Materials.

In 5th International Conference Smart and Multifunctional Materials, Structures and Systems, CIMTEC 2016, Abstract K-2-L10, 5-9 June 2016, Perugia, Italy.

http://2016.cimteccongress.org/abstracts_symposium_k

Nhlakanipho C. Mkhize, Benjamin F. Porter, Madhav Kumar, Ritesh Agarwal and Harish Bhaskaran,
“Micro-contact printing in phase change material nanowire device fabrication” (Poster),
13th International Workshop on Nanomechanical Sensing, Delft, The Netherlands, 22 – 24 June, 2016

M. Kumar, H. Bhaskaran, B. Choubey,

“Nonlinearity in graphene-based nanoresonators”,

Proc. of the 13th International Workshop on Nanomechanical Sensing NMC 2016, Delft, The Netherlands, 22 – 24 June, 2016.

PRESENTATIONS 2016

WAFT Scientific Meeting 20 October 2016, Oxford, Somerville College

Research Presentations:

Harish Bhaskaran,

“WAFT Annual Meeting 2016”

Ben Porter,

“Additive Nanomanufacturing”

Kishnan Murungappan,

“Sensor”

Arseny Alexeev, L. Saharan, G. Hrkac, D. Wright,

“Modelling Flexible and Wearable Electronics”

Research Reviews:

John Sandford O'Neill & Kylee Wu,
"Wearable and Flexible Technologies"

Nikos Aspiotis,
"2D Materials Growth"

Industrial Cases:

Matt Brookes,
Defence Science and Tech Lab

Ben Broughton
Bodle Technologies Ltd.

POSTERS 2016

WAFT Scientific Meeting 20 October 2016 – Poster Session

Sameer Vajjala Kesava, Moritz Riede,
"In situ monitoring of multilayer deposition for organic solar cells"

Merel Lefferts, Krishnan Murugappan, Ben Armitage, Tabitha Jones, and Martin Castell,
"Ultra-Sensitive Molecular Detection of Explosives"

Ghadah Alzaidy

Santiago García-Cuevas Carrillo, C. David Wright, Peiman Hosseini and Harish Bhaskaran,
"Non-Volatile Optoelectronic Phase-Change Meta-Displays"

Zengguang Cheng, Carlos Ríos, Takashi Lawson, Harish Bhaskaran,
"On-chip optical synapse based on phase-change materials"

Gerardo Rodriguez-Hernandez, Peiman Hosseini and Harish Bhaskaran
"Study of Ge₂Sb₂Te₅ properties for opto-electronic applications"

Madhav Kumar and Harish Bhaskaran,
"Self-sensing Graphene-based Nanoelectromechanical Systems (NEMS)"

Nhlakanipho Mkhize, Benjamin Porter, Harish Bhaskaran,
"Self Assembly Monolayer Patterning using Electrohydrodynamic Jet Printing"

Ghazi Sarwat, Jan Mol, Harish Bhaskaran
"Ultimate Limit of Nanoscale Devices: Graphene Nano-gaps"

Karthik Nagareddy

Carlota Ruiz de Galarreta¹, C.D. Wright, J. Bertolotti,

"A Phase-Change Metamaterial-Based Dynamic Beam Steering Device"

Thomas Cosnahan, Andrew Watt & Hazel Assender,

"Depositing patterns of aluminium using a vacuum roll-to-roll technique"

Nhlakanipho Mkhize, Benjamin Porter, Harish Bhaskaran

"Self Assembly Monolayer Patterning using Electrohydrodynamic Jet Printing"

OTHER 2016

Harish Bhaskaran, Peiman Hosseini,

"Germanium",

BBC Radio, Elements, 16 March, radio interview

<http://www.bbc.co.uk/programmes/p03mrtq0>

AWARDS, RECOGNITIONS 2016

POSTER/ABSTRACT PRIZE

Gerardo Rodriguez Hernandez

"Study of Ge₂Sb₂Te₅ for opto-electronic applications"

Second place award for Best Student Poster at the Electronics Materials and Applications (EMA) Conference in Orlando, 2016

<http://ceramics.org/meetings/electronic-materials-and-applications-2016>

Gerardo Rodriguez Hernandez DPhil student in Prof Harish Bhaskaran's Advanced Nanoscale Engineering Group won the second place award for Best Student Poster at the Electronics Materials and Applications (EMA) 2016 Conference in Orlando, Florida, US (organized by the American Ceramic Society). The title of Gerardo's award-winning poster was: "Study of Ge₂Sb₂Te₅ for opto-electronic applications"

STUDENT TRAVEL GRANT AWARD

Carlos Ríos was awarded one of the 10 student travel grants to attend the IEEE Photonics Conference (IPC), which took place in Waikoloa Village, Hawaii, USA, in October 2-6, 2016. Carlos gave a talk on the conference paper titled: **Multi-level storage in non-volatile phase-change nanophotonic memories**

Freddie Onslow wins the Worship Company of Ironmongers Award for the Best Part II talk at Oxford Materials. Freddie was invited to present her talk at the Court at Ironmongers Hall in London on 9 June 2016.

Ben Porter wins the local heat (Oxford) in the Young Lecturer's Competition.

2015

PUBLICATIONS 2015

Wang L, Wright CD, Aziz MM, Ying J, Yang GW,
„A physics-based three dimensional model for write and read performances of phase-change probe memory”,

Journal of Nanoscience and Nanotechnology, (2015), 15 (4), pp 2785-2789,
DOI:10.1166/jnn.2015.9220

Merel J. Lefferts and Martin R. Castell,
“Vapour sensing of explosive materials.”

Analytical Methods, 2015, 7 (21), pp 9005-9017, DOI: 10.1039/c5ay02262b

Rosie A. COBLEY, (Member, IEEE), C. D. WRIGHT, (Member, IEEE), AND JORGE A. VÁZQUEZ DIOSDADO,
“A Model for Multilevel Phase-Change Memories Incorporating Resistance Drift Effects”,
IEEE Journal of the Electron Devices Society, 2015, 3 (1), pp 15-23, DOI: 10.1109/JEDS.2014.2357577

Darren C. J. Neo, Samuel D. Stranks, Giles E. Eperon, Henry J. Snaith, Hazel E. Assender and Andrew A. R. Watt,

“Quantum funneling in blended multi-band gap core/shell colloidal quantum dot solar cells”,
Applied Physics Letters, 2015, 107 (10), 103902, DOI: 10.1063/1.4930144

Y.G. Fedorenko¹, M.A. Hughes², J.L. Colaux³, C. Jeynes⁴, R.M. Gwilliams⁵, K. Homewood⁶, B. Gholipour⁷, J. Yaob⁸, D.W. Hewak⁹, T.-H. Leec¹⁰, S.R. Elliott¹¹, R.J. Curry¹²

“Electrical properties of Bi-implanted amorphous chalcogenide films”,
Thin Solid Films, 2015, 589, pp 369-375, DOI: 10.1016/j.tsf.2015.05.036

Natasha E. Hjerrild, Darren C. J. Neo, Assia Kasdi, Hazel E. Assender, Jamie H. Warner, and Andrew A. R. Watt*

“Transfer Printed Silver Nanowire Transparent Conductors for PbS–ZnO Heterojunction Quantum Dot Solar Cells”,

ACS Appl. Mater. Interfaces, 2015, 7 (12), pp 6417–6421, DOI: 10.1021/am505646d

C. Rios, M. Stegmeier, P. Hosseini, D. Wang, T. Scherer, CD Wright, H. Bhaskaran and WHP Pernice,

“Integrated all-photonic non-volatile multi-level memory”,

Nature Photonics, 2015, 9 (11), pp 725–732, DOI: 10.1038/nphoton.2015.182

Y. Rong, Y. Sheng, M. Pacios, X. Wang, Z. He, H. Bhaskaran and JH Warner,

“Electroluminescence Dynamics across Grain Boundary Regions of Monolayer Tungsten Disulfide”

ACS Nano (2016), 10 (1), pp 1093–1100, DOI: 10.1021/acsnano.5b06408,

P. Hosseini, A. Sebastian, N. Papandrea, CD. Wright and H. Bhaskaran,

“Accumulation-based computing using phase change memories and FET access devices”,

IEEE Electron Device Letters, 2015, 36 (9), pp 975-977, DOI: 10.1109/LED.2015.2457243

H. Nazeer, H. Bhaskaran, LA Wondering and L. Abelmann,

“Young’s modulus and residual stress of GeSbTe phase-change thin films”,

Thin Solid Films, 2015, Vol 592, Part A, pp 69-75, DOI: 10.1016/j.tsf.2015.08.049

P. Hosseini and H. Bhaskaran

“Colour performance and stack optimisation in phase change material based nano-displays”,
SPIE 9520, 2015, Integrated Photonics: Materials, Devices, and Applications III, DOI:
10.1117/12.2178658

P. Hosseini, M. Kumar and H. Bhaskaran,
“2-D materials as a functional platform for phase change tunable NEMS”
IEEE Access, 2015, Vol 3, pp 737-742, DOI: 10.1109/ACCESS.2015.2439572

Youmin Rong, Kuang He, Mercè Pacios, Alex W Robertso, Harish Bhaskaran, Jamie H Warner,
“Controlled Preferential Oxidation of Grain Boundaries in Monolayer Tungsten Disulfide for Direct Optical Imaging”
ACS Nano, 2015, 9 (4), pp 3695-3703, DOI:10.1021/acsnano.5b00852

M. Kumar and H. Bhaskaran,
“Ultrasensitive Room-Temperature Piezoresistive Transduction in Graphene-based Nanoelectromechanical Systems”,
Nano Letters, 2015, 15 (4), pp 2562–2567, DOI: 10.1021/acs.nanolett.5b00129

CONFERENCE PROCEEDINGS 2015

Matthias Stegmaier, Carlos Rios, Peiman Hosseini, C. David Wright, Harish Bhaskaran and Wolfram H.P. Pernice,
“All-photonic nonvolatile memory cells using phase-change materials”,
IEEE Photonics Conference (IPC), 4-8 Oct 2015, pp 4484-485, DOI:10.1109/IPCon.2015.7323552

Harish Bhaskaran,
“An optoelectronic framework enabled by low-dimensional phase change films”,
European\Phase Change Symposium 2015, Amsterdam, 6th - 8th Sep 2015, **invited paper/talk**
<http://www.epcos.org/e-pcos-2015-1>

Hasan H, Kohary KI, Wright C.D,
„A theoretical study of scaling behaviour of mushroom PCRAM devices using the Gillespie Cellular Automata Approach.”
European\Phase Change and Ovonic Symposium 2015, Amsterdam, 6th - 8th Sep 2015,
<https://ore.exeter.ac.uk/repository/handle/10871/20236>

Alex Powell, Andrew Watt, Hazel Assender, and Jason M. Smith,
“Subwavelength Sensing Elements from Film-Coupled Silver Nanocubes”
OSA Technical Digest (online), 2015, paper FTu4E.6, DOI: 10.1364/CLEO_QELS.2015.FTu4E.6

Benjamin F. Porter and Harish Bhaskaran,
“Controlled electrophoretic single-nanoparticle placement via interdigitated electrodes”
Electronic Materials and Applications EMA 2015, Jan 21st-23rd, Orlando, United States of America, Link to abstracts: <http://ceramics.org/2015/01>

Madhav Kumar and Harish Bhaskaran,
“Piezoresistive transduction of graphene-based nanoelectromechanical systems”,
mne2015.org
Link to abstracts: <http://mne2015.org/wp-content/uploads/2015/09/pdf/Thu-C1-c8.pdf>

C. David Wright, Yat-Yin Au, Harish Bhaskaran, Gerardo Rodriguez-Hernandez, Peiman Hosseini, Carlos Rios, Ritesh Agarwal and Wolfram H P Pernice.

“New mixed-mode optoelectronic applications possibilities using phase-change materials and devices”,

MRS Spring Meeting, April 6th-10th, San Francisco, USA

Carlos Ríos, Peiman Hosseini and Harish Bhaskaran,

“Growth and nucleation dominated phase-change materials for nano-optoelectronics and display technology”,

International Nanotechnology Conference on Cooperation and Communication INC11, May 11th-13th, Fukuoka, Japan.

Carlos Rios, Matthias Stegmaier, Peiman Hosseini, C. David Wright, Harish Bhaskaran and Wolfram H.P. Pernice.

“Phase-change chalcogenide photonics”,

Glass reflections conference, September 7th-9th, Cambridge, UK.

Peiman Hosseini, Carlos Ríos, C David Wright and Harish Bhaskaran,

“Phase change materials in Light modulating applications beyond data storage”,

Symposium E\PCOS 2015, Sept 9th-11th, Amsterdam, Netherlands. Invited Paper without DOI

Matthias Stegmaier, Carlos Rios, Peiman Hosseini, C. David Wright, Harish Bhaskaran and Wolfram H.P. Pernice,

“Thermo-optic effect of GST in on-chip photonic circuitries at telecommunication wavelengths”,

Symposium E\PCOS 2015, Sept 9th-11th, Amsterdam, Netherlands. Paper without DOI

Benjamin F. Porter and Harish Bhaskaran,

“Self-Assembly of Single Nanoparticles via the Hydrophobic Interaction”,

Micro and Nano Engineering MNE 2015, Sept 21st-24th, Den Haag, Netherlands.

Link to abstracts: <http://mne2015.org/programme/full-programme/>

Mercè Pacios Pujado, Ye Fan, Zhengyu He, Peiman Hosseini, Jamie Warner, Harish Bhaskaran

“Direct catalysis driven manufacture of graphene-coated Atomic Force Microscope tips”

Advanced Materials and Nanotechnology (AMN-7), Nelson, New Zealand, 08-12 February 2015
Oral contribution.

M. Pacios, B. Porter, G. Yashodhan, S. V. Patwardhan, H. Bhaskaran,

“Kelvin Probe Microscopy for understanding the toxicity of biologically inspired silica at the nanoscale”,

Poster Presentation, Microscience Microscopy Congress 2015, 29 June - 2 July 2015, Manchester Central, UK, Link to abstracts: <http://www.mmc2015.org.uk/conference/scientific-programme/>

POSTERS 2015

WAFT Industrial Advisory Board Meeting, October 2015

11 posters from WAFT Academic Collaborators

AWARDS, RECOGNITIONS 2015

AWARDED HONORARY MEMBERSHIP OR FELLOWSHIP OF A LEARNED SOCIETY

Peiman Hosseini

RAEng ERA Foundation Entrepreneurs' Award, 2015

Peiman Hosseini in Prof. Harish Bhaskaran's Advanced Nanoscale Engineering group was one of four people selected for intensive entrepreneur training by the RAEng (RAEng ERA Foundation Entrepreneurs' Award) and awarded £2000. Wearable technologies are making a big impact in society – beginning to blur the boundary between human and machine. This market is set to be worth \$12.6 billion by 2018. The next generation of lightweight, high performance machines will rely on technologies that are capable of bringing the user as close to a device as possible. Dr Hosseini has created the first reported nano-display device that uses both optical and electronic property modulation in Phase Change Materials. An entirely new class of ultra-thin, ultra-high resolution displays with nanosecond access speed and no power consumption in static mode is now under development by his team. This revolutionary display will initially target the rapidly growing microdisplay market compact, projection-based displays used in emerging near-eye applications like Google Glass. The first prototypes are currently under development, with a small working device set to be ready within the next 12 months. Impact: Spin-out company: Bodle Technology Limited
<http://www.raeng.org.uk/>

PERSONAL INVITATION AS KEYNOTE OR OTHER NAMED SPEAKER TO A CONFERENCE

Harish Bhaskaran,

„An optoelectronic framework enabled by low-dimensional phase change films”,

EPCOS 2015 Award: First (1st) prize oral presentation, Invited Talk at the EPCOS Conference, 2015, Amsterdam, 07/09/2015,
<http://www.rug.nl/research/zernike/epcos/information/>

POSTER/ABSTRACT PRIZE

Carlos Rios Ocampo,

“Growth and Nucleation Dominated Phase-Change Materials for Nano-Optoelectronics and Display Technology”,

Student Travel Grant by the European Commission
Best Poster Award at the INC11 Conference in Fukuoka, Japan, 2015
<http://inc11.org/>

Carlos Rios Ocampo in Professor Harish Bhaskaran's Advanced Nanoscale Engineering research group won the Best Poster Award at the INC11 Conference in Fukuoka, Japan with his poster. The International Nanotechnology Conference on Communication and Cooperation is a big conference pulling together industry, academic and government partners, especially from Europe, Japan and USA, and Carlos was competing for the European award against a large number of high calibre applicants. Impact: highly cited research. High standard journal article in Nature Photonics.