

PROGRAM: 9th ALC WORKSHOP 2016

Wednesday, 23 November

10:00 – 17:00 Arrival
19:30 – 21:30 Dinner (Wallenberg Research Centre)

Thursday, 24 November

07:30 – 08:30 Breakfast (Wallenberg Research Centre)

Session 1 Chair: Erich Rohwer

08:30 – 09:00 Registration

09:00 – 09:30 Opening Proceedings
Dean Faculty of Science (Conference Venue)

09:30 – 10:20 Force and torques on nano- and microscale, from cells to organs with lasers -biophotonics at work. Prof H Rubinsztein-Dunlop, University of Queensland, Brisbane INV 01

10:20 – 10:40 Tea

Session 2 Chair: Christine Steenkamp

10:40 – 11:30 Mechanisms and applications of photobiomodulation. Prof M Hamblin, Wellman Center for Photomedicine, Boston INV 02

11:30 – 11:50 Effects of doxorubicin and sulfonated zinc phthalocyanine mediated phototherapy on viability, proliferation and cytotoxicity of breast cancer cells (MCF-7). E.C. Aniogo, B.P. George and H. Abrahamse, UJ T1

11:50 – 12:10 Photobiomodulation (830 nm) alters Cell Proliferation and Viability in *in Vitro* Diabetic Models under Stressed Conditions. S M Ayuk, H Abrahamse and N N Houreld, UJ T2

12:10 – 12:30 Laser Raman probing carbon nanotube interlinking after ion implantation, pressurization and CO₂ laser heating. L. Kapesi, G. Hearne and J. Changundega, UJ T3

12:30 – 12:50 Effect of photobiomodulation (PBM) on the expression of epidermal growth factor (EGF) and activation of its receptor S.W. Jere, H. Abrahamse, N. N Houreld, UJ T4

(EGFR) in diabetic wounded cells.

12:50 – 14:00 Lunch (Conference venue)

Session 3 **Chair: Andrew Forbes**

			Abstract
14:00 – 14:50	Photobiomodulation of the brain: a new paradigm.	Prof M Hamblin, Wellman Center for Photomedicine, Boston	INV 03
14:50 – 15:10	Comparative study to evaluate the Photodynamic ability of two gold nano-Zinc phthalocyanine complexes in mediating cell death in a breast cancer cell line.	<u>I Mfouo Tynga</u> , N.N. Houreld and H. Abrahamse, UJ	T5
15:10 – 15:30	Combination therapy targeting cancer stem-like cells and bulk tumor resistant melanoma cells for a more efficient treatment.	<u>F.A.Nsole Biteghet</u> and L.M. Davids, UCT	T6
15:30 – 15:50	Tea		
15:50 – 16:10	An all optical VCSEL-to-VCSEL 1550 nm wavelength conversion for high-speed fibre transmission.	<u>D. Kiboi Boiyo</u> , A.W. Leitch and T. B. Gibbon, NMMU	T7
16:10 – 16:30	Laser beam induced current measurements for photovoltaic device characterisation.	<u>R.M. Dix-Peek</u> , E.E. van Dyk, F.J. Vorster, M Okullo and C.J. Pretorius, NMMU	T8
16:30 – 16:50	Evaluation of the anticancer potential of <i>Albuca setosa</i> using high content analysis and flow cytometry.	<u>M.N. Nyambe</u> , B. Swanepoel, M. van de Venter, NMMU	T9
16:50 – 17:10	Block copolymer templates for zinc oxide nanorods in order to obtain titanium oxide nanotubes.	<u>A. Talla</u> , C. Kameni Boumenou, S.R. Tankio Djiokap, S.R. Dobson, K. Talla, Z.N. Urgessa and J.R. Botha, NMMU	T10
17:10 – 17:30	Ultrafast Nonlinear Control in Paint Layers.	<u>T. van der Beek</u> , R. Bruck, O.L. Muskens and A. Lagendijk, Univ Amsterdam	T11
17:30 – 19:00	Wine Tasting Stellenrust		

19:30 – 21:00 Dinner (Conference Venue)

Friday, 25 November

07:30 – 08:30 Breakfast (Conference Venue)

Session 4 Chair: Ernest van Dyk

Abstract

- | | | | |
|---------------|---|---|--------|
| 09:00 – 09:50 | Photonic Force Microscopy and in-vivo imaging. | Prof H Rubinsztein-Dunlop, University of Queensland, Brisbane | INV 04 |
| 09:50 – 10:10 | Ultrafast electron and hole dynamics of photo-excited hematite thin films: An intensity dependency study. | <u>T. Paradzah</u> , K. Maabong, M. Diale and T. P. J. Krüger, UP | T12 |
| 10:10 – 10:30 | Single particle spectroscopy of colloidal hematite. | <u>H.A. Vasco</u> , T.P.J. Kruger and M. Diale, UP | T13 |
| 10:30 – 10:50 | Tea | | |

Session 5 Chair: Hendrik Swart

Abstract

- | | | | |
|---------------|--|---|--------|
| 10:50 – 11:40 | Teleporting quantum states | Prof A Forbes, Structured Light Laboratory WITS | INV 05 |
| 11:40 – 12:00 | Flat-top optical trapping. | <u>N.A. Bhebehe</u> , M. McLaren and A. Forbes, WITS | T14 |
| 12:00 – 12:20 | Classical entanglement: a peek into the quantum world. | <u>B. Ndagano</u> , H. Sroor, B. Perez-Garcia, O. Mouane, M. McLaren, C. Rosales-Guzmán, F.S. Roux, T. Konrad and A. Forbes, WITS | T15 |
| 12:20 – 12:40 | Polarization singularities in customized vector fields. | <u>E Otte</u> , C Alpmann and C Denz, Univ of Muenster | T16 |
| 12:40 – 13:00 | Effect of free carrier absorption on silicon membranes irradiated at 800 nm. | <u>W.I. Ndebeka</u> , P.H. Neethling, C.M. Steenkamp, H. Stafast, E.G. Rohwer, LRI | T17 |
| 13:00 – 14:00 | Lunch (Conference venue) | | |

Session 6 Chair: Pieter Neethling

Abstract

- | | | | |
|---------------|----------------------------|---------------------------------|-----|
| 14:00 – 14:20 | White light supercontinuum | <u>G Dwapanyin</u> , R Viljoen, | T18 |
|---------------|----------------------------|---------------------------------|-----|

	generation and characterization for nonlinear microscopy.	P H Neethling and E G Rohwer, LRI	
14:20 – 14:40	Development of a low-cost spectral domain optical coherence tomography surface profilometry demonstrator.	<u>N.J. Suliali</u> , P. Baricholo, P.H. Neethling and E.G. Rohwer, LRI	T19
14:40 – 15:00	Structure, morphology and photoluminescence properties of pulsed laser deposited $\text{La}_{0.5}\text{Gd}_{1.5}\text{SiO}_5:\text{Dy}^{3+}$ thin films.	<u>S.N. Ogugua</u> , H.C. Swart and O.M. Ntwaeaborwa, UFS, UFS	T20
15:00 – 15:20	The effect of substrate temperature and post annealing temperature on ZnO:Zn PLD thin films.	<u>E Hasabeldaim</u> , O M Ntwaeaborwa, R E Kroon, E Coetsee and H C Swart, UFS	T21
15:20 – 15:40	Tea		

Session 7 **Chair: Gurthwin Bosman**

			Abstract
15:40 – 16:00	A comparison investigation of structure and luminescence properties of $\text{Y}_3\text{O}_2:\text{Bi}^{3+}$ thin films fabricated by PLD, spin coating and RF magnetron sputtering.	<u>A Yousif</u> , R. M. Jafer, R.E. Kroon, E. Coetsee , H.C Swart, University of Khartoum, UFS	T22
16:00 – 16:20	Residual stress measurements in leached polycrystalline diamond using X-ray diffraction and Raman spectroscopy techniques.	<u>M. Vhareta</u> , R.M. Erasmus and J.D. Comins, WITS	T23
16:20 – 16:40	Mechanical, electronic and electrical properties of diamond-like carbon films grown by RF and DC magnetron sputtering.	<u>W.M.Mbiombi</u> , B. Mathe D.Wamwangi and D. G. Billing	T24
16:40 – 17:00	Elastic constants and stress evolution in transition metal based thin films.	<u>D.Wamwangi</u> F. Ayele, T. Wittkowski J.D. Comins and D. Billing, WITS	T25
17:00 – 17:20	Structural and Mechanical Analysis of BCN and B_4C Thin Films Deposited by Laser Ablation.	<u>I.Ghemras</u> , Y. Khereddine, S. Lafane, D. Wamwangi, S. Abdelli-Messaci, CDTA	T26
17:20 – 18:10	New Approaches to Photodynamic Therapy from	<u>Prof T Parker</u> , Rutherford Appleton Lab, UK	ST 1

Types I, II and III to Type IV
Using One or More Photons.

18:15 – 19:00 Demonstrations by the Stellenbosch Chapter of the OSA

19:30 – 21:30 Dinner (Conference Venue)

Saturday, 26 November

07:30 – 08:30 Breakfast (Conference Venue)

Session 8

Chair: Erich Rohwer

Abstract

08:30 – 09:10 From structured light to structured waves. Prof A Forbes, Structured Light Laboratory WITS. ST 2

09:10 – 09:50 Ultrafast Fiber Lasers. Dr Alex Heidt, Inst of Applied Physics, Univ of Bern. ST 3

09:50 – 10:30 High-resolved Spatiotemporal Quantitative Spectroscopic and Fluorescence Microscopy- Just another colourful journey across the cell? J. Bernardino de la Serna, Rutherford Appleton Lab, UK. ST 4

10:30 – 10:50 Tea

10:50 – 11:30 Practical consideration of advanced fluorescence imaging: FRET-FLIM to investigate cell signalling and catalysis. W. Botchway, A. Ahmed, S. D'Abrantes, S. Gratton, N. Omori A.W. Parker and C. Stubbs, Rutherford Appleton Lab, UK ST 5

11:30 – 12:10 A tutorial-tour of condensed-phase molecular ultrafast spectroscopy. P.M. Donaldson, Rutherford Appleton Lab, UK. ST 6

12:10 – 12:50 Experimental generation of entanglement within different platforms and their applications. Adam Vallés and Juan P. Torres ST 7

12:50 -13:00 Conclusion: Certificates and Awards

13:00 – 14:00 Lunch (Conference venue)

14:00 – 22:00 Excursion

Sunday, 27 November

07:00 – 08:00 Breakfast (Apartments)

08:30 – 12:00 Departure for Airport

