

REPORT

4th AFRICAN LASER CENTRE STUDENT WORKSHOP



9 - 13 November 2011, Zevenwacht Wine Estate, Stellenbosch, South Africa

GENERAL

The 4th ALC Student Workshop was hosted for the second successive year at the beautiful Zevenwacht Wine Estate near Stellenbosch. The Conference venue itself was situated in the heart of Zevenwacht Wine Estate's picturesque vineyards (picture below).



View from the Auditorium and Country Inn.

The informal setup on the wine estate did indeed encourage interaction between grant holders and students. We were privileged to have the Peer Review Committee visiting us and have their meetings scheduled to also attend the student presentations. The ALC Board also took the opportunity to have their board meeting at Zevenwacht and be part of the proceedings.

The format of the Workshop proceedings was changed this year by adding an extra day for 8 tutorial sessions. Delegates arrived by transport provided by the organizing committee on Wednesday 8th November. On Thursday and Friday morning report back oral and poster presentations took place. Friday afternoon and Saturday morning was devoted to 8 tutorial lectures in laser physics on topics which were selected to interest and stimulate the minds of the students.

The Workshop was attended by 59 people (pictured below), which were 11 more than we budgeted for. Of them 30 was accommodated in the Vineyard Cottages and the Country Lodge

on the Estate itself, while two was put up in the Rolands Guest House in Stellenbosch. All the LRI members also commuted from Stellenbosch each day. The Peer review committee and Board members stayed in the luxury Country Inn. Meetings of the ALC Workshop took place in the beautiful Auditorium (picture below). The Peer Review committee and ALC Board gathered in the Clubhouse for their meetings.



All the attendees to the 4th annual ALC Student Workshop.



Delegates in the well equipped Auditorium.

The delegates came from 16 countries and presented 20 institutions, as shown by the list of delegates at the end of the report.

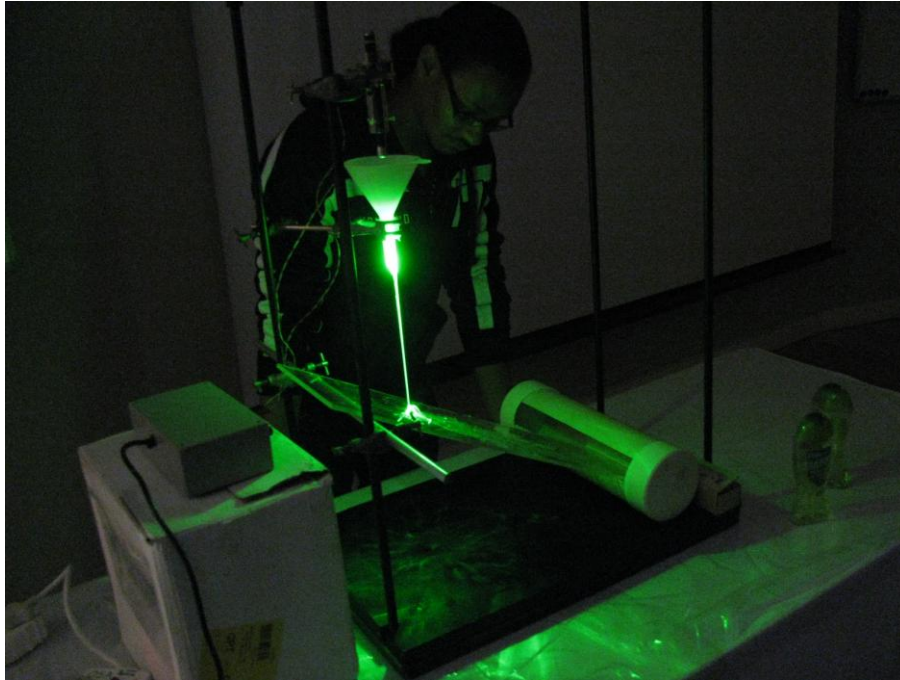
The Workshop's Opening proceedings took place in the Auditorium and the opening dinner in the Country Inn on Wednesday evening 8 November. After a hearty welcome by Prof Erich

Rohwer, Chairman of the organising committee, we were honoured by words of welcome from Dr Paul Motalane.



Dr Paul Motalane welcoming the Workshop delegates.

It was followed by a laser show presented by the OSA Student Chapter at the LRI. They brought the important advantages and opportunities created by such a OSA student chapter to the attention of the audience. The fact that funding was made possible by OSA to buy demonstration equipment to promote optics and lasers to schools, to attend overseas conferences and the opportunity to invite internationally acclaimed scientists to South Africa.



OSA student member demonstrating propagation of laser beam in a liquid column.

The delegates were entertained during the opening dinner by a band sponsored by iTemba Laboratories. Below Dr Motalane and two members of the Peer review committee joined into the act.



Prof Alfred Msezane, Dr Paul Motalane and Dr James Uhumoibhi enjoying the music.

The workshop proceedings started on Thursday morning in the beautiful Auditorium in the Country Lodge on the Estate. We were impressed by the exceptional good service we received from the Zevenwacht personnel running the auditorium.

In total we had 19 oral presentations in five sessions over a period of a day and a half. Additionally we had 10 poster presentations from ALC delegates on Thursday afternoon.

We had the honour of having 3 invited speakers.



1. Prof Andrea Galtarossa, Department of Information Engineering (DEI), University of Padova, Italy. The title of his talk was “Polarization of light in optical communications: an impairment or a resource?”. It involved the main problem related to transmission of polarized optical signals in standard single-mode fibers, being that fiber birefringence causes polarization dependent dispersion, which could be overcome by using two different approaches: coherent detection in conjunction with polarization maintained fibers or by producing low birefringent fibers.



2. Dr James Uhomoibhi, Faculty E-Learning Coordinator at the University of Ulster, Ireland. The title of his talk was “Laser Light scattering detection and measurements of micro-rheological structures and dynamics of complex systems (foams and its ageing) and measurement of uniform translational motion”. He discussed the technique of diffusing wave spectroscopy (DWS) to study the ageing of foams and to investigate the response of the system’s signal itself in what is called a uniform translational motion.



3. Prof Mourad Zghal, Engineering School of communications of Tunis, Université of Carthage, El Ghazala Ariana Tunisia. The title of his talk was “Supercontinuum generation in photonic crystal fibers” He reviewed the physics behind the process of supercontinuum generation in photonic crystal fibers, as well as applications ranging from sensors to lasers and to different types of passive and active waveguide devices

The Chairman appointed a panel of referees to judge student presenters according to the science quality and presentation quality of their presentation. The members of the panel were

PRESENTATION REFEREE PANEL
Prof Hubertus von Bergmann, US Prof Hendrik Swart, UFS Dr Andrew Forbes, NLC Prof Andrew Leitch, NMMU Prof Andrea Galtarossa

Our sincere thanks to Wirsam Scientific who sponsored our awards. Five awards for exceptional presentations at the Workshop 2011 were personally handed over by Dr Sharfuddin Sayed, Product Manager of Wirsam, at the conclusion of the workshop proceedings. Prizes were awarded to the following students:

NAME	CATEGORY	INSTITUTION	TITLE
Zephania Birech	PhD Oral	LRI, University of Stellenbosch	Exciton dynamics in tetracene single crystals studied using femtosecond nonlinear spectroscopy
Luanne Spies	PhD Oral	Department of Biochemistry and Microbiology, NMMU	The anticancer potential of <i>Artemisia afra</i> .
Ivan Tynga	MSc Oral	Laser Research Centre, Faculty of Health Sciences, University of Johannesburg	Cell death in Human Breast Cancer Cells using Zinc Phthalocyanine and Laser Irradiation
Stephanie Mukarugina	MSc Poster	Photonics Research Group,	Fibre Bragg grating sensor for vibration.

		Dept of Electrical Engineering and Electronics Sciences, UJ	
Olufemi Olaoye	MSc Poster	LRI, University of Stellenbosch	DFT calculation of dithizonatophenylmercury II isomerisation reactions.

At the conclusion of the workshop report back proceedings a certificates stating that the recipient made a presentation at the 4th ALC Student Workshop 2011 were handed out to all the presenters by Dr Paul Motalane.



The 2011 Workshop was extended to include a full day of special topics by selected speakers in an effort to stimulate the interest of the students. These two sessions included 8 talks as listed below:

	Title	Speaker
1	Digital Holography	Prof Andrew Forbes
2	Attosecond Physics	Prof Heinrich Schworer
3	Optical fiber: birefringence properties and measurements and application of innovative sensors	Prof Andrew Leitch
4	Optical sensors: new solutions for advanced applications	Prof Andrea Galtarossa
5	Basics of fiber optics	Prof Mourad Zghal
6	Laser interferometry: Ultimate limit determination, configurations, vibrometry, distance and angle parameter measurements, and profilometry	Dr James Uhomoibhi
7	Ultrafast electron diffraction: Exciting developments and applications	Dr Günther Kassier
8	Basics in steady state and time resolved Spectroscopy	Dr Christian Litwinsky

At the end of the special topic sessions before lunch on Saturday, the proceedings of the 2011 Workshop was concluded by a word of special thanks by Dr Ndumiso Cingo.



Dr Ndumiso Cingo at the closing of the 2011 ALC Student Workshop.

Every delegate received an ALC embroidered golf shirt and cap at registration, which was proudly worn on the last day on the outing.



Invited speakers Andra Galtarossa and Mourad Zghal in discussion



Peer Review Committee members James Uhumoibhi, Paul Motalane and Mohamed Henini at dinner.

Special mention can be made of the excellent meals we were offered by the staff of the Zevenwacht estate. Everybody surely gained a few kilos over the weekend. Below is a picture of the meal offered at lunchtime at the auditorium. After that it was difficult to keep the eyes open for the afternoon lectures.



On the Thursday afternoon the delegates were treated to a wine, as well as brandy tasting in the cellar of the Zevenwacht wine estate. Everybody received a souvenir wine glass to take home.

On Saturday afternoon the delegates were taken on an excursion to Betty's Bay along the picturesque drive along False Bay. It was a beautiful afternoon and everybody enjoyed the visit to the penguin colony and the beautiful Harold Porter Botanical Gardens, where Ulrich Deutschlander took the delegates on one of the climbing routes.



Penguin colony at Betty's Bay.



Harold Porter Botanical Gardens, Betty's Bay.



ALC Board members enjoying the outing to the Harold Porter Botanical gardens.

CONCLUDING REMARKS

We would like to thank the ALC for their generous support to host this prestigious event. It surely was money well spend. We managed to organise the event, with an extra day added, on the same budget as last year. We kept well within the budget although we had many more delegates than was budgeted for. We got an overwhelming positive feedback about every aspect of the workshop. Delegates were happy about the venue, the professional service they experienced, the unique opportunity to have this interaction with fellow students as well as invited speakers and other project leaders.

Several senior delegates mentioned that the quality of the scientific work produced and level of performance of the students in the laser research field improved over the last number of years.

DELEGATES TO THE WORKSHOP

Surname	Initials	First name	Title	Institution	Nationality
Abrahamse	H	Heidi	Prof	Faculty of Health Sciences, UJ	RSA
Ambushe	A A	Abayneh	Dr	CSIR, NLC, Pretoria	Ethiopia
Baricholo	P	Peter	Mr	National University of Science and Technology, Bulawayo	Zimbabwe
Birech	Z	Zephania	Mr	LRI, Physics, Univ of Stellenbosch	Kenya
Bosman	G	Gurthwin	Mr	LRI, Physics, Univ of Stellenbosch	RSA
Chabata	T V	Valentine	Mr	National University of Science and Technology, Bulawayo	Zimbabwe
Deutschlander	U G K	Ulli	Mr	LRI, Physics, Univ of Stellenbosch	RSA
El Hussein M.Kamel	A	Ahmed	Dr	NILES, Cairo University, Egypt	Egypt
Forbes	A	Andrew	Prof	CSIR, NLC, Pretoria	RSA
Fosuhene	S K	Sameul	Mr	Physics, NMMU, Port Elizabeth	Ghana
Galtarossa	A	Andrea	Prof	University of Padova, Italy	Italy
Ireeta	W T	Winston	Dr	Physics, Makerere University, Kampala, Uganda	Uganda
Kaboko	J J M	Jean - Jacques Monga	Mr	Electrical and Electronics Engineering Sciences, UJ	DRC
Kassier	G	Gunther	Dr	LRI, Physics, Univ of Stellenbosch	RSA
Khamlich	S	Saleh	Mr	iThemba Labs	Moroccan
Leitch	A W R	Andrew	Prof	Physics, NMMU, Port Elizabeth	RSA
Litwinski	C W H H	Christian	Dr	Chemistry (NIC), Rhodes University, Grahamstown	RSA
Mukarugina	S	Stephanie	Ms	Electrical and Electronics Engineering Sciences, UJ	Zimbabwe
Mekonnen	K N	Kebede	Mr	Science Faculty, Addis Ababa University, Addis Ababa, Ethiopia	Ethiopia
Mohammed	A Y	Abdelrhman	Mr	Physics, UFS, Bloemfontein	Sudan
Muguro	K M	Kennedy	Mr	Physics, NMMU, Port Elizabeth	Kenya
Ndebeka	W I	Wilfrid	Mr	LRI, Physics, Univ of Stellenbosch	Congo
Neethling	P	Pieter	Dr	LRI, Physics, Univ of Stellenbosch	RSA
Ngcobo	S	Sandile	Mr	CSIR, NLC, Pretoria	RSA
Mbanda Nsougui	GCM	Gaëlle	Ms	LRI, Physics, Univ of Stellenbosch	Congo
Ntwaeaborwa	O M	Martin	Prof	Physics, UFS, Bloemfontein	RSA
Numan	N	Nagla	Ms	LRI, Physics, Univ of Stellenbosch	Sudan
Obadele	B A	Babatunde	Mr	Chemical and Metallurgical Engineering, Tswane University of Technology, Pretoria	RSA
Okullo	W	Willy	Dr	Physics, Makerere University, Kampala, Uganda	Uganda
Olaoye	OO	Olufemi	Mr	LRI, Physics, Univ of Stellenbosch	Nigeria
Ombinda-Lemboumba	S	Saturnin	Dr	CSIR, NLC, Pretoria	Gabon
Rohwer	E	Egmond	Mr	LRI, Physics, Univ of Stellenbosch	RSA
Rohwer	E G	Erich	Prof	LRI, Physics, Univ of Stellenbosch	RSA

Saoula	N	Nadia	Dr	CDTA, Division des Milieux Ionisés et Lasers, BabaHassen, Algeria	Algeria
Schwoerer	H	Heinrich	Prof	LRI, Physics, Univ of Stellenbosch	Germany
Seed Ahmed	H A A	Hassan	Mr	Physics, UFS, Bloemfontein	Sudan
Spies	L	Luanne	Ms	Biochemistry and Microbiology, NMMU, Port Elizabeth	RSA
Sowemimo	A A	Abimbola	Dr	Dept of Pharmacognosy, Univ of Lagos, Lagos, Nigeria	Nigeria
Steenkamp	C M	Christine	Dr	LRI, Physics, Univ of Stellenbosch	RSA
Swart	H C	Hendrik	Prof	Physics, UFS, Bloemfontein	RSA
Tynga	I M	Ivan	Mr	Faculty of Health Sciences, UJ	Gabon
Van Dyk	EVD	Ernest	Prof	Physics, NMMU, Port Elizabeth	RSA
Vhareta	M	Maxwell	Mr	School of Physics, WITS, Johannesburg	Zimbabwe
Vorster	FJV	Fredrik	Dr	Physics, NMMU, Port Elizabeth	RSA
Walters	P E	Pieter	Prof	LRI, Physics, Univ of Stellenbosch	RSA
Wamwangi	DM	Daniel	Dr	School of Physics, WITS, Johannesburg	Kenya
Waswa	D	David	Dr	Physics, NMMU, Port Elizabeth	RSA
Yigiletu	M	Melaku	Mr	Dept of Geography, Geoinformatics and Meteorology, UP, Pretoria	RSA
Zghal	M	Mourad	Prof	Engineering School of communications of Tunis, Université of Carthage, El Ghazala Ariana Tunisia	Tunisia

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PEER REVIEW COMMITTEE

Cingo	N	Ndumiso	Dr	CSIR, NLC, Pretoria	
Evans-Lutterodt	K	Kenneth	Dr	Brookhaven National Laboratory, Upton, NY, USA	
du Plooy	T	Thomas	Mr	CSIR, NLC, Pretoria	
Henini	M	Mohamed	Prof	School of Physics and Astronomy, University of Nottingham,UK	
Michaelis	M	Max	Prof	School of Physics, University of KwaZulu–Natal, Durban	
Motalane	P	Paul	Dr	CSIR, NLC, Pretoria	
Msezane	A	Alfred	Prof	CTSPS, Clark Atlanta University, Atlanta, USA	
Uhomoibhi	J	James	Dr	Faculty of Computing & Engineering, Univ of Ulster, Northern Ireland	

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ALC BOARD MEMBERS

Amara	EH	El Hachemi	Dr	CDTA, Baba-Hassen, Algiers, Algeria	
Asante	J	Joseph	Dr	Tswane University of Technology, Pretoria	
Cingo	N	Ndumiso	Dr	CSIR, NLC, Pretoria	
Erasmus	R M	Rudolph	Dr	School of Physics, WITS, Johannesburg	
Kioni	P N	Paul	Prof	Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya	
Maasa	M	Malik	Dr	iTemba Labs, Somerset West	
Motalane	P	Paul	Dr	CSIR, NLC, Pretoria	

Mtingwa	S	Sekazi	Prof	Senior Physicist Consultant, Brookhaven National Laboratory, Upton, NY, USA	
Sekota	M	Mantoa	Dr	Faculty of Science and Technology, National University of Lesotho	
Singh	S	Shyam	Prof	University of Namibia, Windhoek, Namibia	
Oti	T	Tom	Prof	Physics Department, Faculty of Science, Makerere University, Kampala	
Von Bergmann	H M	Hubertus	Prof	LRI, Physics, Univ of Stellenbosch	

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TOTAL

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Countries represented by delegates

Algeria	1
Egypt	1
RSA	21
Ghana	1
Italy	1
Ethiopia	2
Congo	3
Germany	1
Kenya	3
Uganda	2
Zimbabwe	4
Sudan	3
Nigeria	2
Gabon	2
Tunisia	1
Moroccan	1
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