December 2015 Faculty of Engineering & the Built Environment University of Cape Town Vol. 11 Issue 4

Faculty Newsletter

Message from the Dean

What a year! Few people would have been able to predict the happenings that have taken place in higher education in 2015. Thank you to everyone for pulling together over the past couple of weeks to ensure that the students who wished to write were able to. Special thanks to the deputy deans, Professor Pilate Moyo and A/Professor Brandon Collier-Reed and Faculty Manager, Gita Valodia, who visited the exam venues every day to make sure everything was running smoothly. We are extremely grateful that our exams went off without any disruptions. Now the hard work begins as marking starts and the tight deadlines loom.

The deferred examination period will run from 11 to 25 January 2016. The provisional timetable will be available after 16h30 on 24 December and the final timetable on 31 December. It is going to take another concerted effort to ensure that the exams happen and that the final course marks are uploaded by 29 January 2016. I am very aware that this is a very tight deadline and will do everything I can to support staff during this time. Orientation for the new first-year students will begin as planned on 3 February 2016.

Many, many thanks to A/Professor Brandon Collier-Reed, the faculty office and departments for the hard work they have put in to ensure that we have an increased number of offers for places for first-year students in 2016. The predictions show that we should meet our targets and in some departments be slightly over. This is very good news!! With the tight budget constraints we cannot afford to be under our first-year targets.

As we look towards the future, 2016 is going to be a challenging but exciting year with lots of great things happening in the faculty. I would like to take this opportunity to wish you all well over the festive season. Recharge your batteries and be ready to face the new year and what it may bring us.

Collaboration with Japan on the Hydrogen Economy

In August, Dr Sharon Blair, Director of HySA Catalysis, Centre for Catalysis Research, Deputy President Cyril Ramaphosa, the Minister of Science and Technology, Naledi Pandor, and a delegation from South Africa attended a symposium in Japan on the Hydrogen Economy.

Hydrogen and Fuel Cell technologies hold out the promise of a cleaner, more environment-friendly, and oil-independent future. While Japan had already started to create a hydrogen economy, the 'triple disaster' that devastated Japan in 2011 rapidly accelerated the research in this field under the Science and Technology Basic Plan 2011.

Japan is currently a leader in cutting-edge hydrogen technology and holds the largest share of patents in this field. South Africa, on the other hand, has a significant competitive advantage in developing hydrogen and fuel cell technologies, as it is endowed with considerable deposits of platinum, which is a key catalytic material used in fuel cells. As part of the global agenda to integrate energy systems, South Africa has positioned itself as a significant player to developing these technologies. Against this backdrop, the developmental stages of South Africa and Japan are different. Despite the differences in the systems, there are niche areas where collaboration could be enriched in the field of hydrogen and fuel cells.

The symposium provided an open platform to initiate a dialogue for possible collaboration between the two countries in the respective fields.

This video clip is a summary of the symposium

2015 IEEE Radar Conference - Out of Africa - always something new

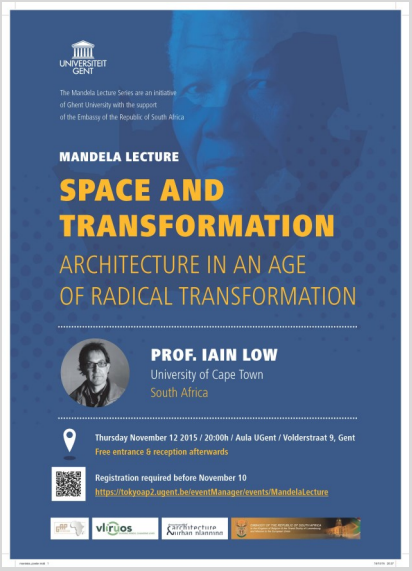
The 2015 IEEE Radar Conference, held in Johannesburg in late October, was the first to take place in Africa, and it brought together colleagues from all over the world, and all corners of the radar enterprise.

Both developing and developed nations have growing interest in the use of radar to monitor large areas for diverse purposes in both the civilian and military domains. New and emerging threats such as piracy, poaching and asymmetric warfare require improved radar technology to allow border protection, prevention of human trafficking, wildlife preservation, facility protection, and so on. To achieve this, radar systems must deliver new levels of rich information whilst being operationally effective, even in harsh conditions.

2015 IEEE conference attendees

Professor Mike Inggs from the Department of Electrical Engineering was the General Chair of the conference. He said, “The conference also commemorated the work of my elders 75 years ago under the leadership of Sir Basil Schonland to produce the first indigenous radar system. Schonland spent 15 years at UCT and began his fundamental work on lightning during that time. They would be proud to have seen the conference, i.e. how radar is alive and well worldwide, and that their African descendants are contributing as peers.” From UCT, he was supported by A/Professor Daniel O’Hagan, Technical Chair, and A/Professor Amit Mishra, Tutorial Chair, as well as a group of postgraduate students and Judy MackIntosh.

Mandela Lecture Series at Ghent University



Professor Iain Low gave the Mandela Lecture at Ghent University in Belgium in early November. The Mandela Lecture series is an initiative of Ghent University with the support of the Embassy of South Africa.

Professor Low’s topic was Space & Transformation – architecture in an age of radical transformation. The coincidence of globalisation with the political shift in South Africa at the end of the last century has informed and reinforced societal change with a range of contested outcomes. As the physical manifestation of any set of power relations, space and its transformation have become important measures of this change. Demanding new forms of engagement, teaching and practice have become challenged to respond in creative ways to meet the needs of a severely damaged society. Given the gravitas of the colonial project, this is proving to be a project confronted by significant resistance. This lecture will attempt to locate the productive dimensions of this change within the context of Mandela's legacy. Reflecting on the complexity and contradictions of the post-apartheid era, it will attempt to identify constructive transformation and its challenges within the context of two decades of democratic governance.

Wishing everyone a peaceful and restful time over the holidays and Merry Christmas to our staff members who will be celebrating Christmas

NRF ratings

Congratulations to the staff members who have received their NRF ratings.

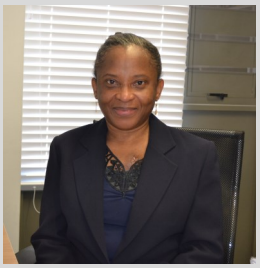
New Ratings:

Dr Katye Altieri from the ERC received a P - rating.

Dr Julian Raxworthy
Landscape Architecture

Dr Nancy Odendaal
City & Regional Planning

A/Prof Mark Zuidgeest
Civil Engineering.



Dr Abimbola Windapo
Department of Construction Economics and Management.

Successful Re-evaluations:

A/Prof Hans Beushausen
Civil Engineering

Prof Alison Lewis
Dean: EBE Faculty

Emeritus Professor Trevor Gaunt - Electrical Engineering

UCT wins SAIEE National Student Competition

Josh Perry, a final-year mechatronics student, was chosen to represent the Department of Electrical Engineering at the South African Institute of Electrical Engineering National Student Competition on 25 November 2015. At the competition, one undergraduate student from each major university presented their final year thesis/project. The universities represented were Pretoria, Stellenbosch, UKZN, Wits, NWU, and UJ.

Joshua received first prize for his presentation on his final year project titled *Bio-inspired Robotics: A Kangaroo Rat Inspired Stunt Robot.* Dr Amir Patel was his supervisor. Josh said, “Thanks to Dr Patel for all his support. It was a great team effort.” This is the first time that UCT’s Department of Electrical Engineering has won the competition. Congratulations to Josh and Dr Patel.

Deputy Deans

On 31 December, Professor Vanessa Watson's tenure as deputy dean with the portfolio of special projects will come to an end. Professor Watson took up her position in 2011 and during her time has worked on a number of important projects – the main building projects – NEB and Centlivres, e-portfolios, the future foreshore project, and the elective Social Infrastructure course to name a few. With the opportunity of a new deputy dean, the portfolio has been changed from special projects to social responsiveness and transformation, as these are two important areas in the faculty.

A/Professor Tanja Winkler has been appointed as deputy dean with this new portfolio as from 1 January 2016 for a period of three years. Tanja has a particular commitment to the enhancement of social responsiveness and transformation with the faculty, as well as being engaged in UCT's broader social justice and equality agendas.

Professor Brandon Collier-Reed's tenure as deputy dean responsible for undergraduate education was due to come to an end on 31 December 2015. With the support of the DAC and the Faculty Board, his contract as deputy dean responsible for undergraduate education has been renewed as from 1 January 2016 for a period of two years.

Professor Pilate Moyo took over in September from Professor Sue Harrison as deputy dean with the portfolio of research and postgraduate education.

Professor Kobus Van Zyl is the assistant dean with the portfolio for academic development. In 2016, discussions will take place about upgrading this position to a deputy dean position.

In August 2014, Professor Alireza Baghi Wadji took up the position of assistant dean with the portfolio of internationalisation. With the restructuring in the Dean's office, this position will fall away at the end of December. Our sincere thanks to Professor Baghi Wadji for the role he has played over the past year.

First and second place at Greenovate Awards

Property studies honours students took first place at the Greenovate Awards which took place in Johannesburg on 26 November. Second place went to a team made up of two quantity surveying honours students and a construction studies honours student.

The awards are an exciting initiative launched by Growthpoint Properties and the Green Building Council of South Africa. The awards aim to inspire and encourage students of the built environment to discover, explore and invent ways to live more sustainably.

The UCT teams were up against teams from Wits and Pretoria universities. Each team had to present their project to a panel of judges.

First place went to Rowan McKenzie, Dijon Ross and Mieke van der Merwe under the supervision of Saul Nurick. They presented on their research project titled *The Role of the Green Property Indicator in the South African Property Market.*

Second place went to Alex Demetriou, Daniel Searle and Kenny Toplis under the supervision of A/Professor Kathy Michell. They presented on their research project titled *An investigation into urban facilities management and the development of a sustainability rating tool for urban precincts: a case study of the Central City Improvement District, Cape Town.*

The two teams with A/Professor Kathy Michell (3rd from left) and Saul Nurick (first on right)

UCT-UQ flotation day

On Friday 20 November the Flotation Team within the Centre for Minerals Research hosted their second joint meeting between themselves and the Flotation team from the University of Queensland. Presentations focussed on topics of great interest to current Flotation research and were of an exceptional standard. Specially invited guests included international colleagues from the University of Valparaíso, Chile; University of Lorraine, France and the CSIRO, Australia.

UCT c*change students grabbing awards at CATSA 2015

Thulani Nyathi and Anna Petersen, both students of the Centre for Catalysis Research got awarded best oral and best poster presentation prizes at the Annual Meeting of the Catalysis Society of South Africa (CATSA) held at the Arabella Hotel and Spa in Kleinmond on 15-18 November 2015.

The CATSA meeting brought together some 240 national and international delegates from various fields of catalysis including heterogeneous, homogeneous, bio- and electrocatalysis.

Notably both, Thulani and Anna, are students of the DST-NRF Centre of Excellence in Catalysis, c*change, which held its annual 2 day symposium at the Caledon Hotel in the days preceding the CATSA event. c*change students have an exceptional track record regarding the CATSA awards and this year was no exception.

Congratulations Thulani and Anna!

Jeff Kenvin from Micromeritics presented the Micromeritics Best Poster presentation Award to Anna Petersen. Anna is supervised by Professor Eric Van Steen and Professor Michael Claeys.

Alan Thompson from Clariant presented the Clariant Best Oral Presentation Award to Thulani Nyathi. Thulani is supervised by Professor Michael Claeys and Dr Nico Fisher.

The French honour Architecture graduate

In October, Carin Smuts, a 1984 UCT architecture graduate, received the Chevalier des Arts et des Lettres (award of Knight in the order of Arts and Letters) from HE Elisabeth Barbier, the ambassador of France to South Africa.

In her speech at the reception held at the Alliance Franchise in Cape Town, the ambassador said it was an honour to give the award to Carin Smuts for her work and contribution to new architectural solutions that so accurately address the challenges of our times. The award is a French decoration of honour established in 1957 and given by the French Ministry of Culture.

"Your work stands out from the classic vision of architecture. Through your projects you defend very powerful ideas. For you, the goal of architecture goes beyond the functional need, is an instrument of transformation, a lever of development and empowerment," HE Elisabeth Barbier said.

Smuts formally co-established CS Studio Architects in Cape Town in 1989 after having initiated projects since 1982. CS Studio Architects has consistently worked with underprivileged communities and championed projects

Carin Smuts with HE Elisabeth Barbier, ambassador of France to South Africa.

involving integrated development planning and low-cost housing and has completed over 100 projects in rural and urban contexts.

Smuts said, "The future of architecture is about people and facilitating harmony and holism through technical interventions in a participatory way. Allowing a voice to the voiceless. It is not Green Star Rated environments which are driven by capitalism and greed."

She became known in France in 2008 when she won the Global Award for Sustainable Architecture. Annually, this award honours five living architects who have made significant moves towards sustainability. The award, announced in Poissy, France, was given for the body of work which, over 20 years, focused on involving people to create more sustainable environments.

Since 2008, she has collaborated with French architect Christophe Hutin, organising workshops for South African and French students in Soweto and rehabilitating the French Institute (Ifas) building in Braamfontein, Johannesburg. She also works closely with French architect Odile Decq, whose school in Lyon, named Confluences, plans to open a branch called Confluences in Africa, allowing French and South African students to travel all over the continent to work with communities and practice their skills.

During the French-South African Seasons in 2012/2013, La Cité de l'Architecture dedicated an exhibition to Smuts's work. She has lectured all over France including Paris, Lyon, Strasbourg, Bordeaux and Nice.

Young Achiever award for property studies graduate

Nina Dube, one of the first property studies students who graduated from UCT in 2001, has been recognised for the significant role that she plays within Barclays Africa (ABSA), and in a short space of time has moved through the ranks to fulfil an often difficult and challenging position. At a gala dinner held in October, Dube received the Young Achiever Award (under 35) from the Women's Property Network.

The awards honour and celebrate remarkable women doing exceptionally well in South Africa's property sector. They recognise outstanding leadership, inspiration, vision and innovation in organisations that have stepped up and shaped women's roles within the private and public sectors.

Dube started off studying construction studies at UCT before changing to the new property studies degree, which really excited her. She said, "The course gave a solid base for all aspects of the property industry and I have seen several graduates take a multitude of directions with Property Studies behind them. It opens all sorts of doors, from broking to property valuations, to investment and asset management opportunities, to mention but a few."

She is presently the Chief Credit Officer, Commercial Property Finance, at ABSA. On receiving the award, she said, "I am completely humbled by the award and grateful at the same time. In my mind, I have always worked hard and dedicated myself wholeheartedly to my role whatever that has been and this is a great acknowledgement of that to me. Once the dust settled, I must say I find myself quite delighted."

Kathy Evans, a senior lecturer in the department, who lectured Dube, said, "She is a really delightful young woman and has done very well and the achievement of this award is a huge accolade. She has been responsible for the employment of a number of our graduates who have worked under her guidance. I am very proud of her."

Top two awards for EBE at Innovation Summit

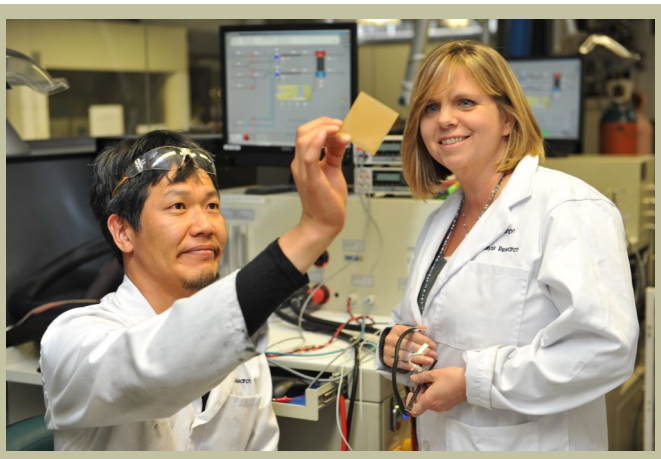
The AVI Awards, introduced at the Avi Afrique Innovation Summit at the CSIR ICC in Pretoria, are a culmination of the partnership between the Technology Innovation Agency (TIA) and the Air Traffic and Navigation Services (ATNS). The AVI Awards are for innovators who are involved in developing aeronautical innovation in any form.

First prize for the first hydrogen-powered aircraft

In October, Mark van Wyk, a private pilot and entrepreneur from Cape Town, walked away with the first prize at the AVI Awards for his prototype UAV (unmanned aerial vehicle) that will become the first hydrogen-powered aircraft, fully developed in South Africa.

The award was enabled by HySA/Catalysis, in particular, Dr Shiro Tanaka of HySA/Catalysis (UCT), who led the technical effort on the design of the fuel cell stack, and Professor Arnaud Malan and his team from the Department of Mechanical Engineering, who were responsible for the aerodynamic modelling of the UAV.

Van Wyk, the founder of the company FlyH2 Aerospace, and his partner, Onno Huyser, are developing a large, fixed-wing unmanned aircraft for survey and environmental research purposes. The aircraft will be powered by novel miniaturised hydrogen fuel cells designed, prototyped and trialled by TIA Seed Fund recipients at the University of Cape Town, HySA Catalysis. FlyH2 Aerospace is a licensee for the patented fuel cell technology and the partnership with the HySA team demonstrates that when industry-University collaborations have clear shared goals, each partner's role is understood and their projects are well-managed by University technology transfer offices, they are capable of developing potentially ground-breaking technologies. The hydrogen fuel cells would provide an electric propulsion alternative which is carbon neutral, has zero-emission and is environmentally friendly. The hydrogen fuel cells will enable the UAV to survey larger areas for environmental research at lower energy cost and environmental risk. Among its other uses, South African researchers will potentially be enabled to gather comprehensive and important earth-observation data with the intention of improving land-use, planning and environmental management, which in turn will add to improved sustainability management.



Dr Shiro Tanaka and Dr Sharon Blair, director of HySA/Catalysis

Second prize for Commensal Radar

Professor Mike Inggs and his team from the Radar Remote Sensing Group (RRSG) in the Department of Electrical Engineering, received second prize at the AVI Awards for the Commensal Radar project.

This project involves theoretical and practical demonstration of the detection and tracking of aircraft, large and small, using low-cost technology based on existing FM Broadcast Band emitters. The new technology is known as Commensal Radar. RRSG has developed, through student projects, innovative, low-cost hardware, and new mathematical models for tracking aircraft detected by the radar. The group is actively seeking to have this technology become a product, after a comprehensive trial. The technology does not require licensing of RF spectrum.

It is interesting to note that this technology has reached its peak almost exactly 75 years after the first indigenous radar in South Africa detected its first target on 16 December, 1939. This system's construction was directed by Sir Basil Schonland, who had left UCT just two years before after a 15-year career in the UCT Physics Department to join the Bernard Price Institute, attached to Wits.

Professor Mike Inggs said: "Africa needs to improve its air traffic safety, and expand enormously. The Commensal Radar using the FM Broadcast signals could well be the solution. It is low cost, i.e. probably 100 times cheaper than the equivalent, conventional radar."

Understanding global change - from space

In order to understand the impact of climate change, such as rising sea levels, researchers need to be able to measure it within a consistent geocentric global terrestrial reference frame. The origin of the coordinate system is the centre of the earth – which changes as well, and must be accounted for when all measurements refer to this frame. That is, we must be able to establish where the earth's centre of gravity is at any time. But how does one go about taking measurements on a global scale? One answer is to take measurements from space, through the discipline of space geodesy, which uses data from satellites to measure and understand the earth's changing shape and gravity field, the location of the earth's centre of mass, and rotational motion.

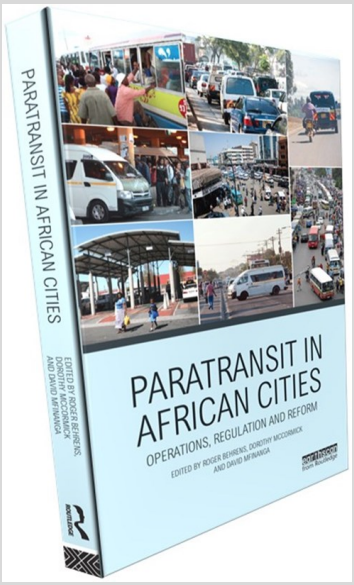
Dr Ramseh Govind from Geomatics
Photograph by Michael Hammond

It was in order to set up Africa's first space geodesy analysis centre at UCT that Dr Ramesh Govind moved from Australia back to his home country, South Africa, almost three years ago. Read More *(Article from Research at UCT e-newsletter)*

Book launch: Paratransit in African cities

On 19 November 2015, the VREF-supported ACET (African Centre of Excellence for Studies in Public and Non-Motorised Transport) launched a book: *Paratransit in African cities: Operations, regulation and reform*. The launch was hosted by the Institute for Development Studies at the University of Nairobi, as part of a conference celebrating IDS's 50 -year jubilee.

Around 70 guests were welcomed to the launch by Peter K'obonyo, Deputy Principal of the College of Humanities and Social Sciences, and Winnie Mitullah, Director of IDS. Roger Behrens and Dorothy McCormick, two of the book's editors, discussed the content of the book, noting that readers should take away an appreciation of the value that paratransit offers in rapidly urbanising sub-Saharan African cities. The book's principal message to policy-makers and system planners is that paratransit should not be ignored or wished away in policy and regulatory reform processes. Policies that recognise paratransit, and seek complementarity with formalised scheduled services, are likely to produce more equitable and sustainable benefits than policies that ignore their continued existence.



UCT professor explains danger of water-shedding for water

University of Cape Town's civil engineering Professor Kobus van Zyl says although water-shedding may save water in the short term, it badly affects water quality.

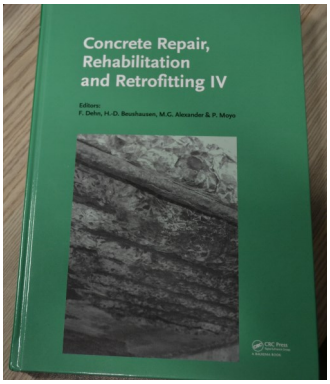
This comes after the Free State became the first province in the country to implement scheduled water-shedding across all municipalities. "All water distribution systems in the world have leaks in the pipes where water leaks out when the system is operating normally. Under water-shedding, water is allowed to empty. This means that water and soil on the outside of the pipe can now enter the pipe through the holes and cracks, since there is no water pressure in the pipe to prevent this," Van Zyl told News24.

Image by: *Gallo Images/Thinkstock*

He said water around pipes was often polluted from the surface water.

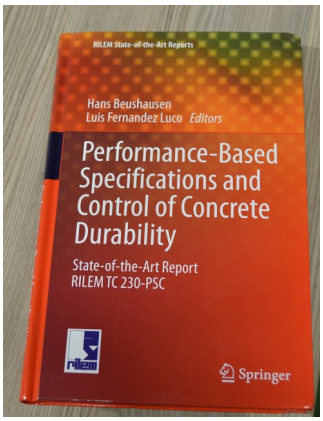
Article from Times Live. Read More

Two new books for CoMISRU



Concrete Repair, Rehabilitation and Retrofitting IV: proceedings from the 4th International Conference on Concrete Repair, Rehabilitation and Retrofitting, held in October 2015 in Leipzig, Germany. The editors are A/Professor Hans Beushausen, Professor Mark Alexander, Professor Pilate Moyo (CoMSIRU, Department of Civil Engineering, UCT) and Professor Frank Dehn, (University of Leipzig, Germany.)

This is probably the leading international conference on concrete repair and approximately 300 delegates attended in 2015. The conference is a collaborative venture by researchers from the South African Research Programme in Concrete Materials (based at the Universities of Cape Town and the Witwatersrand) and the Material Science Group at Leipzig University and the Leipzig Institute for Materials Research and Testing in Germany.



Performance-Based Specifications and Control of Concrete Durability. State-of-the-Art Report RILEM TC 230-PSC Editors: A/Professor Hans Beushausen and Professor Luis Fernandez Luco from the University of Buenos Aires.

This work is the outcome of a Technical Committee that A/Professor Hans Beushausen has chaired for the past five years. There were 45 international members from around the world, all experts on concrete durability and non-destructive testing of concrete structures. Professor Fernandez Luco was the secretary of the committee.

News from the African Centre for Cities (ACC)

Mistra Urban Futures (Gothenburg, Sweden) has approved a second four-year tranche of funding for the ACC as part of its international *Making Just Cities* research programme. From 2016 to 2019 the ACC will use the funds to support its research into normative urban change, city governance, and knowledge co-production. The latter includes exchange of City of Cape Town officials and a second phase of the innovative embedded researcher programme, this time focused on transit oriented development.

Sophie Oldfield joins the ACC in 2016 as Professor of Urban Studies. She was previously in the Department of Environmental and Geographical Science at UCT. Professor Oldfield will lead the Cape Town component of a new taught full-time Master's degree in Urban and Landscape Studies offered jointly by the universities of Basel and Cape Town. Postgraduates enrolled at Basel may elect one semester of study at UCT. The programme adds reach, resource and impact to the ACC's suite of teaching and research.

The edited volume entitled *Mean Streets* was launched at the end of November in Cape Town at a function addressed by two of the three co-editors, Jonathan Crush and Caroline Skinner. The book's thirteen chapters probe issues of migration, xenophobia and informality in South Africa.

ACC has concluded a year-long research programme into urban land-value measurement and its financial leveraging for infrastructure development in African cities. Cameo studies and reports are available on the ACC website.

Prof Vanessa Watson with a group of experts in Bellagio, Italy

Adjunct Professor Berrisford was awarded a grant from the Rockefeller Foundation to host a workshop exploring the prospects for a Centre for the Study of Urban Law and Finance in Africa. Eighteen experts from around the continent attended the week-long meeting at the end of November in Bellagio, Italy.

Issue 7 of ACC's *Cityscapes* magazine ('Rethinking Urban Things') features writing and images from 27 contributors. The Issue features essays on Africa in the next century, cloning the African city, Tshwane 'smart city' gone awry, housing in Addis Ababa, and interviews with Filip de Boeck and Mayor Parks Tau.

Budding entrepreneurs

A 20-week Upstarts' programme for aspiring social entrepreneurs at UCT culminated recently in an 'idea auction', which had investors putting up money and resources to help ideas get off the ground.

An idea that attracted both interest and investment at the auction was Jonga, which means "we are watching". Jonga is a low-cost alert system dedicated to getting communities connected and getting them protected. It is made up of a sensor that sends a signal to a transmission unit if a perimeter is breached. This transmission unit in turn alerts the residents and neighbours, who can then take action to secure the property

The Jonga team: Kabir Prema left), Ntando Shezi and Ntsako Mgiba, with Cape Talk's Kieno Kammies, who was the MC for the night

The team consists of Ntsako Mgiba, a second-year mechatronics student, Kabir Prema, a first-year electrical-mechanical student and Ntandoyenkosi Shezi, a second-year business science student. They split their roles according to their degrees. Mgiba and Prema focused more on the technical aspects while Shezi looked at the financial side and developed the business model.

Mgiba came up with the idea of a low-cost alert system after an experience he had while visiting his aunt in a township. Shezi explains: "The sad reality is that modern security systems are very expensive and come with hefty maintenance costs. The average household income in township communities is around R3200, so it is unrealistic to get such expensive systems into the townships.

Mgiba said, "I have always been aware of my surroundings and pick on things that could be improved. This is why I decided to go into engineering. I want to equip myself with the necessary tools to identify and solve problems. I love being an entrepreneur and I plan on cultivating the entrepreneurial spirit in me."

Prema said that his goal is to become an entrepreneur after completing university. He added, "I feel great being an entrepreneur as I have the opportunity to start my career early and I have the opportunity to make a difference in people's lives through employment and the distribution of our systems."

One of the prizes they walked away with at the idea auction was a media campaign from Cape Talk to the value of R125 000.

1982 FLASHOVER—engineering student publication

The Elected Council. Standing f.l.t.r.: John Zacheriades, C. J. Cunliffe, Craig Opperman, Alistair Wyrley-Birch, Karen Wright, John Bruyns, Glenn Howard, Keith de Buys, Rob Isted. Seated: Ian McKechnie, Glynn Morris, Alistair Clark, Alison Billing.

Spot the Dean

Ian McKechnie was part of the Electrical Engineering's ECSA accreditation visit

Spot Julian Meyer

Mech. Eng. 3rd year Boiler Test at Athlone Power Station.

Mech. Eng. technician Jules Meyer makes a flue gas analysis with an ORSAT apparatus, while John Moon and Allan Paddon look on.

Faculty News

Welcome to new staff

Ms Carmen Jordaan joined the Department of Mechanical Engineering in October as an admin assistant.

From October, Mr Dillon Jacobs is the chief technical officer in the Department of Mechanical Engineering.

Mr Michael Boulle joined the Energy Research Centre in November as an assistant research officer.

In November, Mrs Gillian Verster became a permanent member of staff in the Department of Civil Engineering as a research admin assistant.

Mr Hilton Trollip joined the Energy Research Centre in November as a senior research officer.

Resignations

Mrs Eloise Williams left the Department of Chemical Engineering in November.

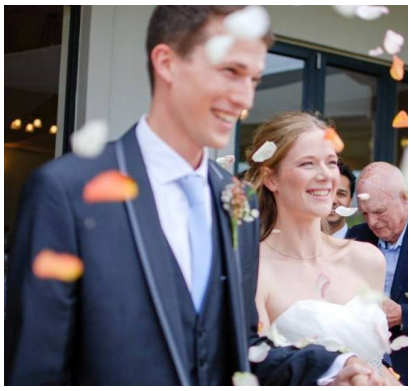
Farewell

Jill Rumbelow, Vivienne Basckin and Jane English

"It wasn't what you said that was so important, it was the way you make us feel." This is a comment that so many students have made about Vivienne Basckin, who will be retiring after 20 years working in the Professional Communication Unit. Below is an excerpt from Professor Jane English's farewell speech on 11 November.

"Over this time, Vivienne must have seen over 4000 students from pink-cheeked 2nd years to wearier postgraduates from virtually all UCT's faculties, particularly engineering, science and commerce. Now, I think this means she has had a positive effect on South Africa's GDP. Don't laugh. If each of those students she taught left not only having better abilities to communicate – write, speak - their subject BUT, and a big BUT, emerged more confident, that is something about which we cannot underestimate the importance. It is not necessarily the student who knows more but the one comfortable in his or her skin who arrives in the workplace able to do better – be better, thanks to Viv. Vivienne's students leave her class taller than they went in."

Congratulations



Tracy Booysen from the Department of Mechanical Engineering married Jordan Adams on 23 October 2015

Dr Sarah George from the Centre for Materials Engineering is marrying David Portmann on 5 December 2015.

Hayley Battle from the Crystallisation and Precipitation Unit in the Department of Chemical Engineering is getting married to Derrick Mackrill on 21 December 2015.

Retirees

Professor Mark Alexander

In May 1992, Mark Alexander was appointed as a Professor in the Cape Town Corporation Chair of Civil Engineering at UCT. His academic career began at Wits University in 1979 as a lecturer, then senior lecturer and from 1989 as an Associate Professor.

At UCT, Mark was Head of the Department of Civil Engineering from 1998 to 2002, Deputy Dean responsible for undergraduate studies from 2006 to 2009, and assistant dean in 2010 with the academic development portfolio.

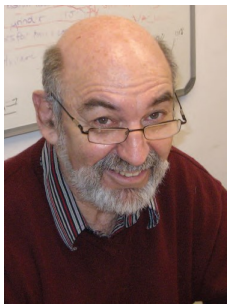
In 2005, Mark formed an informal research group called Concrete Materials Structural Integrity Research Group. Professor Pilate Moyo and A/Professor Hans Beushausen joined the group and in 2010 CoMSIRU became the first formally accredited research group in the Department of Civil Engineering. Mark has been the director of the research group and when he retires in December, Professor Pilate Moyo will become the new director.

For the past three years, Mark has been President of RILEM, an international union of laboratories and experts in construction materials, systems and structures. In September, his contract came to an end and his role now as a past President will be to facilitate the election of the next Vice-President.

Mark is certainly not slowing down when he retires. In January, he will be giving a keynote address at the International Conference on Advances in Cement & Concrete Technology in Africa,

which is taking place in Dar es Salaam. He has also been asked to sit as an expert on a panel for the European Research Council looking at new proposals for upcoming research leaders. The faculty is also wanting him to stay on as a Senior Research Scholar.

Professor Gerald Nurick



Gerald Nurick joined UCT in 1977 as a PhD student under the supervision of Professor John Martin. In 1979, he was appointed as a lecturer in the Department of Mechanical Engineering and was promoted to senior lecturer in 1984, and Associate Professor in 1990. He was appointed to a professorial position in 1994.

Gerald has worked in the field of impact dynamics for over twenty years. He was responsible for the establishment of the Blast Impact Survivability Research Unit (BISRU) which received accreditation in 2003. He was the first academic in South Africa to get a blasting certificate.

From 1993 to 2002 Gerald was part of the faculty executive. He was an assistant dean to Professor John Martin, and deputy dean responsible for undergraduate and postgraduate affairs under Professor Cyril O'Connor. The faculty is also wanting Gerald to return next year as a Senior Research Scholar.

Tribute to Prof Nurick and Prof Alexander by Prof Cyril O'Connor

It is with great pleasure that I accept the invitation to contribute to the faculty's tribute to two of our legendary colleagues, Gerald Nurick and Mark Alexander, who retire this year after a combined period of 59 years of loyal service to the Departments of Mechanical and Civil Engineering respectively, and to Faculty and the University. I had the great privilege of working closely with both Gerald (1998-2002) and Mark (2006-2008) when they served as Deputy Deans in the faculty. Both, by the way, served as Deputy Deans for longer periods before and after my own term as Dean. What stands out most of all for me is that while they were carrying the significant extra administrative burden as Deputy Deans they continued, at the same time, to serve as excellent role models as both outstanding teachers and researchers of international standing. This added greatly to their reputation as academic leaders and the faculty was enormously enriched in all its activities by having such outstanding academics in senior leadership positions. It is my understanding that they have been invited to continue to play active roles in the faculty after retirement and I have no doubt that their presence will contribute significantly to the academic development, both in teaching and research, of younger colleagues with whom they interact in their respective capacities. Finally I wish to add my own personal thanks and appreciation to them for the huge contribution they have made to the faculty and the university during their illustrious careers.

Retirees

Professor Chris Redelinghuys

Professor Redelinghuys has been associated with the University of Stellenbosch, the University of the Witwatersrand and RAU, where he lectured a number of subjects such as design, dynamics, flight mechanics, strength of materials and fluid mechanics. He was employed as an engineering system designer by a number of companies, both locally and abroad, and acted as the chief systems engineer of the South African satellite rocket booster programme in the 1980s. He regularly provides design and modelling assistance to industry.

Chris originally joined the Department of Mechanical Engineering in 1993. He then left and spent time at RAU and Wits before returning to UCT in 2005. He was HOD from 2010 to 2013. He was the founder and leader of the Aeronautics Research Group.

Dirk Reyskens

Dirk joined UCT in June 2009 as laboratory and safety manager for the Centre for Catalysis Research in the Department of Chemical Engineering. Dirk had previously spent ten years at the Plascon Research Centre at the Institute for Polymer Science at the University of Stellenbosch. Dirk has been responsible for nine labs in the Chemical Engineering and the New Engineering Buildings. In retirement, he is looking forward to being able to spend more time bass fishing in and around Cape Town, working through his to-do list and travelling. He is also hoping to attend courses in history, politics and economics. He said, “I am going to miss the interaction with the students – with their bright young minds.”

Betsie Koch

Betsie joined UCT 25 years ago as an admin assistant in the Afrikaans and Nederlands department in the Arts Faculty. Fifteen years ago she was interviewed by Keith Cattel, Paul Bowen, Kathy Michell and Kathy Evans for the undergraduate administrative position in the Department of Construction Economics and Management. In 2014, she became the departmental manager. Betsie will be retiring at the end of December 2015. She said, “I have learnt so much over the past 25 years. I am lucky to work in a department where we are like one big family. The best part of my job was seeing the students grow over the years.” She is looking forward to working in the garden, doing things that she never had time to do when she was working and most of all, being able to spend time with her family.

Patrick Kanye will be retiring at the end of the year after 46 years of service in architecture and planning. Patrick joined the university at the age of 17, where he started off in the workshop, operating the switchboard and duplicating lecture notes. He is now responsible for all the audio equipment and the setting up of venues for lectures in architecture, landscape architecture and planning.

Walter Böhringer

Walter is an honorary senior lecturer in the Department of Chemical Engineering. He joined the Catalysis Research Unit in 1999. Previously, he had spent 20 years as a research officer in the section of Chemistry and Technology of Gas, Oil and Coal at the Engler-Bunte Institute, Faculty of Chemical Engineering, University of Karlsruhe, Germany. In 2016, Walter will continue to assist the Centre for Catalysis Research.

Masithethe isiXhosa

Five EBE staff members attended the second semester 12-week isiXhosa Communication Skills course run by the Multilingualism Education Project in CHED. It is certainly not easy as an adult to learn a new language and it is great to see staff members learning to communicate in a language which is the home language of many of our students. We hope to see many more staff members participating next year.

Seen proudly displaying their certificates are CEM staff Uche Ordor, Anastacia Haddon and Abdulrauf Adediran (PhD student*).* Missing from the picture are Francis Carter and Marijke Fagan-Endres.

Civil engineering external examiners

On 1 December. eleven external examiners were hard at work on civil engineering undergraduate final-year research projects. In this project students individually research a complex research problem, including an independent investigation of specialised literature in the field, the development and execution of a research plan and the professional communication of the research. It is great to see that out of the eleven external examiners, there were seven alumni.

Prestigious international award

Michelle Chesa, a construction studies honours student, was awarded the Peter Shepherd Scholarship for 2015. She won the award based on her academic performance and her contribution as a member of the 2014 ABES committee who co-ordinated the 2014 Community Build. Mark Massyn handed over the certificate in his capacity as the Senior Vice President CIOB Africa Region

2016 EBE Postgraduate Student council

Chairperson	Takunda Chitaka
Vice- Chairperson	Mehdi Safari
Secretary General	Jafaru Egieya
Treasurer	Jeremiah Mutungi
Academics	Binjamin Barsch
Events Coordinator	Nthabiseng Mahloko
Corporate Liaison	Ngoni Mhonde
Marketing and Communications	Mercy Dada
International Students	Joan Ongodia
Outreach	Ayesha Govender

CeBER research day

CeBER Research Day, in its six years of existence, has become much more than a progressive platform to showcase research. It is a unique opportunity in the CeBER calendar for postgraduate students and staff to engage in cross-disciplinary discussion and relax cohesively outside of UCT. This year the event was hosted on 16 September at the Park Inn Radisson, Claremont, by organisers Durgaprasad Madras Iyer, Caryn Hobbs, Muven Naidoo and Edith Mshoperi.

The programme, consisting of presentation and poster sessions, ran flawlessly and included an address by two guest speakers: Ben Durham, the Chief Director of Bio-Innovation at the National Department of Science and Technology, and UCT's deputy vice-chancellor, Prof Danie Visser.

PhD Student Marc Brighton became a third-time recipient of the Best Speaker prize, with Muven Naidoo and Alex Opitz taking up the Best Poster and Best Questions prizes for 2015 respectively. The Centre continued celebrations after the proceedings by raising a glass to their champion Brewing Team, who supplied a sample of their SAB-award-winning beverages for all to enjoy.

(Story and photograph by Candice Mazzolini)

CASPER Workshop 2016

The 2016 Collaboration for Astronomy Signal Processing and Electronics Research (CASPER) workshop will be held in Cape Town from 25 to 29 January 2016, and is co-located with the High Performance Signal Processing South Africa conference.
The conference follows keynote presentations by experts in the fields concerning radio astronomy and high-speed signal processing using high-performance computing platforms. Participants can also choose to submit abstracts to present research papers, tool presentations, or a poster. Working group meetings and tutorials will also be taking place.
More details of the conference can be found here.
The organising committee is Dr Simon Winberg, Professor Daniel O'Hagan, Professor Mike Inggs, Dr Andrew Van der Byl from the Department of Electrical Engineering, and Mr Francois Kapp from SKA.

Obituary

Keith Balchin passed away on 13 September 2015. Keith was a private consultant who advised Professor Gerald Nurick and BISRU on safety issues. He was also a part-time lecturer in the Department of Mechanical Engineering from 2005 to 2014, and was involved in the faculty's annual health and safety programme. He was responsible for the health and safety assessments on all the new and refurbished labs.

Keith graduated from UCT with a BSc (Eng) Mechanical Engineering in 1978 and a Master's in Industrial Administration in 1986.

Carl Schoombie, a 2014 Mechatronics graduate, was tragically killed on 25 November 2015. Carl did a BCom degree first at Stellenbosch University before joining UCT in 2011 where he did a mechatronics degree in the Department of Electrical Engineering.

A/Professor Azzem Khan, who worked with him on his final year project, said, "He was a very focused and mature individual. He had previously completed a BCom degree, but engineering appeared to be much more gratifying to him. He mentioned travel plans for 2016, but said that he'd consider a MSc in 2017. This is indeed a tragic and senseless loss of a life. Our prayers and strength go out to his friends and family."

CeBER outreach programme

In June 2015, CeBER staff and students, together with sponsors Zeiss Microscopy, united to inspire the students of Siyazakha Primary School in Philippi. This community outreach trip, designed to encourage rather than educate students, was spearheaded by CeBER PhD student Thandazile Moyo, who assembled volunteers and organised a variety of interactive demonstrations to engage with the grade 6 learners on a scientific platform.

Over the course of the afternoon, scholars had the opportunity to witness an erupting volcano, home-made lava lamps, potato-powered LEDs and a selection of other simple science-based displays. Over and above these experimental exhibitions, the students were given the opportunity to interact with a racially diverse CeBER Team – possibly the most important experience of the day for all parties.

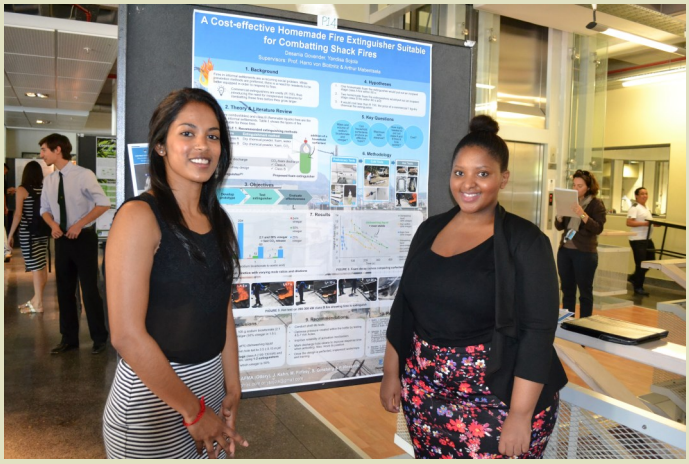
The CeBER Outreach team thanked Professor Harrison for her consistent support of this initiative and Zeiss Microscopy for the use of their microscopes on the day.

(Story and photograph by Candice Mazzolini)

Chemical Engineering project poster session

The annual Chemical Engineering project poster session, where final-year students present their work in poster format and explain their projects to academics and visitors, took place on Friday 27 November 2015.

DIY fire extinguisher



An interesting project was a cost-effective homemade fire extinguisher suitable for combating shack fires. Desania Govender and Yandisa Sojola under the supervision of Professor Harro Von Blottnitz and Mr Arthur Mabentsela adopted the project from a Science Expo project. Desania said the idea came from a Science Expo project where two students; Kahn, J. & Firfirey, M. had produced a homemade fire extinguisher limited only to class A fires and without foaming capabilities. The foam they produced was not stable. Desania and Yandisa went on to produce a product which uses vinegar, water, sodium bicarbonate and dish-washing liquid for a foaming agent. This product can be used on Class A fire (ordinary combustibles such as wood and cardboard) and Class B fire (flammable liquids such as petrol and paraffin). The overall cost of making the extinguisher is much less than commercial extinguishers; less than R11 vs. R150 for a commercial fire extinguisher. They have produced a pamphlet which gives you steps on how to build your own extinguisher as well as what material you will need.

Farewell event for the graduating students

There was a great turn-out of staff and students at the farewell event held for graduating students. It was not a traditional December graduation ceremony, but it provided an opportunity to mark the occasion with the graduates and their lecturers.