



December 2012

Innovation highlights 2012



Receiving the Eskom Chairman's award in the Innovation Category (From left) **Etienne Phillips** (Senior Project Engineer), **Ian Wedderburn** (Dep. Director Engineering), **Dirk Odendaal** (Dep. Director Planning & Business Development), **Andrew Young** (Engineering Director), **Danie Hattingh** (Director), **Phillip Doubell** (Welding Engineer of Eskom's Resources & Strategy Division), **Mark Newby** (Chief Research Engineering of Eskom's Resources & Strategy Division) and **Louis von Wielligh** (Group Process Engineer).

Mr Dirk Odendaal and Mr Andrew Young represented Mantacor (Pty) Ltd (the commercialisation vehicle established to commercialise the Weldcore® technology) at the Electric Power Research Institute (EPRI) Conference held in Florida US earlier this year. The technology received positive attention and the team learned about the US market and potential applications.

“It is great to be part of a team that developed a technique which, already in the piloting phase, has resulted in major savings for the taxpayer, far exceeding the initial investment. The challenge now is to package this innovative solution in such a way that it can become a commercially viable tool on the international scene.”

*Prof Danie Hattingh
(Director of eNtsa)*

Moving towards commercialisation on two of the NMMU's major projects

Two major research projects that have been undertaken by NMMU over the last few years are moving towards commercialisation. **eNtsa** is making significant progress with its 'Weldcore' project and **InnoVenton** has made major strides with its 'Micro-algae to Bioenergy' project. Both projects have received funding from the Technology Innovation Agency (TIA) to continue development into commercialisation over the next two years.

eNtsa secured R11.3 million from TIA for the late stage development and commercialisation of their Weldcore® technology. This unique engineering technology offers an efficient, cost-effective way to quantitatively test whether to

replace engineering structures.

During their lifetime materials subjected to high temperatures and pressures suffer stress and degradation, for example, steam pipes in power stations. Assessing the level of material degradation is critical to decide whether it is safe to continue running the plant or whether the material (for example, the pipe) must be replaced. The Weldcore® technology is a method of removing representative samples from a potentially degraded material and repairing the sample site using a novel welding technology. Shutdown costs are minimised, and the sample taken can be analysed to determine whether to replace the structure or whether it can safely continue running.

The TIA funding will be used to develop new industrial applications for the technology, to test platforms for specific applications and to commercialise the applications. Recent successes include work performed at Hendrina Power Station saving Eskom billions in capital replacement costs. Eskom awarded the eNtsa team the Eskom Chairman's award in the Innovation category in recognition of their work on this project (main picture).

InnoVenton's Algae to Bio-Energy project, which received Year 1 funding from TIA in late 2011, is currently finalising the work that needs to be done for Year 2 and 3 of the project. While the research work will continue, certain aspects are nearing commercialisation and discussions on building a semi-commercial plant have started. TIA has identified the project as a priority project for their new "accelerated commercialisation" programme.

Renewable Energy Street Light

An off-grid urban lighting system powered by a combination of a vertical axis wind turbine (VAWT) and photovoltaic (PV) cells has been developed by the NMMU. The system, Twerly, will produce less noise pollution than conventional wind turbines, which will allow them to be installed in residential areas. In addition, VAWTs are simpler to construct and cheaper to manufacture. The dual energy supply will allow for off-grid

installation, providing clean lighting to urban and rural areas without the need for cabling, which reduces the risk of theft.

A prototype unit has been operating at the NMMU. Final optimisation of the energy harvesting system is almost complete. A number of orders for a Twerly have been received from the NMMU and private developers. Watch out for a Twerly near you soon!

The project focuses on the growing of algae in plastics bags – essentially a farming operation – and then harvesting them for various purposes. One of the first uses will be as a binder for coal fines – which increases the value of the fines and deals with a major environmental problem. The algae can also be turned into a "bio-crude oil" which has the potential to supplement crude oil. Distilled water is also a by-product of the process, which could be a major boon in rural settings.

Flourishing Projects

Incubator Delivers Fashion Success Stories



The Arts and Design Incubator graduates... (Left picture): Mooi Mooii founders, **Samantha Miller** and **Lauren Gravett**; Right: MaXhosa by Laduma Creative Director, **Laduma Ngxokolo** with some of his designs.



ive designer, Laduma Ngxokolo, developed the range during his BTech Textile Design. The incubation space has played a critical role in growing his business as he continues to prosper. One of his key challenges is being able to manufacture in South Africa, with the downturn in the textile industry. He has found a manufacturer in Cape Town, but still hopes to set up his own production plant in Port Elizabeth soon. Even with these challengers, he has been featured in exclusive magazines – this year alone, he was featured in L'Uomo Vogue Italy and South African GQ Style. His jerseys are also featured in a television advert for a local alcoholic beverage. Laduma was awarded as an Alumni Rising Star by the NMMU Alumni Association.

Set up by the IS&TT and the Department of Applied Design to assist NMMU creative arts graduates kick-start their businesses, the Art & Design Incubator, situated at NMMU Second Avenue campus has been a home for two new businesses started by NMMU graduates, Mooi Mooii and MaXhosa by Laduma. The mentoring and support received has enabled the graduates to make a name for themselves in the fashion world.

The Mooi Mooii girls, Samantha Miller and Lauren Gravett, went into full production in March 2011 whilst completing their BTech in Fashion Design. They have applied their academic

knowledge while overcoming the challenges posed by starting a new business. Their slogan 'Effective style and functional ease' defines their style and the ready to wear clothing that they produce. Mooi Mooii launched their flagship store in Port Elizabeth with a fashion show and cocktail party on 5 October 2012. Samantha and Lauren are dividing their time between production and the store, while seeking new distribution channels within South Africa and beyond. Visit them at No 1, Havelock Square, Central.

MaXhosa by Laduma knitwear range has received recognition internationally after the crea-

“These entrepreneurs have the potential to employ people in our region and develop it into a creative design hub—very exciting indeed!”

The fledgling incubator is still finding its place within the NMMU and funding remains a challenge. While seeking support it will, however, continue to assist graduates who have the potential to develop viable businesses before or after they graduate.



Technology adds up!

The NMMU's Govan Mbeki Mathematics Development Unit has created a DVD Series covering the entire South African Maths syllabus for Grade 10, 11 and 12, as well as Science for Grad 11 and 12. The Series, called TouchTutor™, is being used in incubator schools to improve maths and science, as well as for training student teachers.

TouchTutor™ has been licensed to Innovolve, the NMMU's commercialisation company, who has sub-licensed it to Future Mobile Technology (FMT). FMT is embedding the Series on locally-produced tablet computers which will be available at selected retailers nationwide in 2013. An NMMU innovation that can make a difference to the future of our country!

Innovator of the year

Dr. Farouk Smith (right) from the Department of Mechatronics was awarded Innovator of the Year 2012 for his four provisional patent applications in the field of space electronics, specifically regarding the mitigation of distortion to electronic signals created through interference. In space technology, interference can be caused by radiation from particles in space, which can result in false signals being transmit-

ted. Typically, for critical applications, circuits are triplicated to ensure that interference can be detected. However, in systems such as satellites and aeroplane cockpits, this triplication can cause space and weight burdens. Farouk Smith's innovations offer a way of addressing these challenges.



Engaged Innovation

Regional Innovation Forum Highlights



Engaging....From left: **Jaci Barnett** (IS&TT Director), **Francois Denner** (CSR), **Belinda Vabaza** (ECDC), **Tony Budden** (House of Hemp), **Wendy Fisher** (RIF)

Technology. Established in 2010 and officially launched on 3 March 2011, the Forum is an initiative of twelve local organisations from government, industry and academia that have joined forces to drive innovation within the Nelson Mandela Bay and Cacadu District municipal region.

Currently, the RIF is working on identifying opportunities within specific focus areas, development of a Science Park, renewable energy, natural fibre beneficiation and other opportunities emanating from the Eastern Cape Innovation Strategy (ECIS).

The RIF has hosted events and workshops throughout the year and also assist with reviewing proposals written by businesses for funding sources such as the Jobs Fund and the Green Fund

Forum membership is open to anybody interested in local economic development through innovation. Presentations made at events and other information related to innovation are available on the RIF website:

www.innovationeasterncape.co.za

The NMMU championed the creation of the Nelson Mandela Bay Municipality / Cacadu District Municipality's Regional Innovation Forum. The Forum aims to stimulate, support and promote innovation in the Eastern Cape and is funded by the Department of Science and

SARIMA Workshop

Jaci Barnett was asked to speak at an IP Workshop at the University of Zululand in Richard's Bay, to introduce challenges of technology transfer and SARIMA's role. Jaci is the Vice President: Innovation & Technology Transfer of SARIMA (Southern African Research and Innovation Management Association).

Training in Mauritius

Jaci Barnett was requested by the Department of Science and Technology to give a training workshop on Setting up a Technology Transfer Office to the Mauritius Research Council and Mauritian Universities. The workshop was opened by the Mauritian Minister of Science and Technology, the Hon Dr. Rajeshwar Jeetah, who stressed the importance of protecting and managing IP. The workshop took place over two days in August.

IP Workshop

The Regional Innovation Forum, in partnership with the Nelson Mandela Metropolitan University (NMMU), hosted an Intellectual Property Workshop on 29 March 2012. The workshop covered topics ranging including:

- A general introduction to Intellectual Property (IP) and the IP process,
- The role of the patent attorney
- How IP is governed in South Africa
- How IP is governed in universities

The workshop discussions were contextualised with examples of inventions and commercialisations including lessons learned and strategies for the future. Participants had an opportunity within a relaxed setting to interact with presenters Mr Rory Moore, a registered South African Patent Attorney, Ms Mary-Ann Chetty and Ms Jaci Barnett.



SARIMA Conference



Innovation showcase **Dirk Odendaal** (eNtsa), **Mary-Ann Chetty** & **Otto Lessing** (Innoventon)

The SARIMA Conference was held for the first time in Port Elizabeth and was a great success. Local and international delegates discussed and debated issues on Research Management and Technology Transfer over three days. The Conference was preceded by three workshops. The gala dinner was a great success despite being held under a breezy Humewood beach bridge. TTOs from around the country were invited to participate in the SARIMA Innovation Showcase held in parallel at the Conference. The showcase hosted an open day where the public were invited and attracted a number of local business people.

WIPO Presentation

Jacqueline Barnett, Director of Innovation Support and Technology Transfer, was invited by the World Intellectual Property Organisation (WIPO) to give seminars on technology transfer in Banjul, The Gambia, earlier this year. The seminar was hosted by WIPO in collaboration with the Attorney General's Office of the Ministry of Justice and the African Regional Intellectual Property Organization (ARIPO).

The seminar was on the "The importance of patents and the Patent Cooperation Treaty for Research Institutions and Universities". Jaci gave four lectures on Knowledge Transfer, Licensing and Commercialising IP, IP Policies and Setting up a Tech Transfer Office.

Jaci travelled with WIPO representative 'Nyalleng Pii, as well as an ARIPO representative, Christopher Kiige. They were hosted by Cherno Marenah, the Registrar General in the Attorney General's office.



IS&TT Travels

US AUTM Conference

Mary-Ann Chetty was one of five recipients globally of the prestigious AUTM Developing Economies Scholarship for Technology Transfer professionals.

The award is given annually to applicants who come from 42 eligible developing countries, and provides funding for the recipient to attend one of AUTM's conference or training courses.

Mary-Ann attended the Association of University Technology Managers (AUTM) annual meeting in Anaheim, California in March 2012. She also visited UCLA's Tech Transfer Office



Mary-Ann Chetty with Dr. Todd Sherer (AUTM President 2012) at a conference cocktail hosted by WIPO

in Los Angeles to discuss tech transfer structures and processes.

Science Park Annual Conference

Jaci Barnett and Dr Jo Zeelie (Faculty of Business and Economic Sciences) attended the International Association of Science Parks Annual Conference in Tallinn, Estonia earlier this year.

This is part of the NMMU's drive to create a Science Park in the Port Elizabeth area. Jaci and Jo came back with an increased understanding of the challenges facing Science Parks, particularly the tendency of Science

Parks to become property development companies when revenues are required to repay capital loans. Current discussions with provincial and national players are to create an incubator in existing space, rather than building a new facility in the short-term.

The NMMU is an associate member of the International Association of Science Parks and will be hosting the Second African Division Conference in April 2013.

Staff News



New Staff Appointment

The Department of Innovation Support & Technology Transfer is pleased to announce the appointment of Mr Zulfaqar Dudhia as Innovation Officer. Zulfaqar joins us having a background in life sciences & biotechnology with experience in Intellectual Property law. He joined us from Von Seidels Intellectual Property attorneys, where he served as a candidate attorney. His responsibilities will include (i) managing NMMU's IP portfolio, (ii) the commercialization of NMMU research, and (iii) creating awareness among staff and students about Innovation and IP related matters to further enhance the department capabilities.



Staff Leaving

Ms. Lihle Ngxokolo, a BTech Public Relations student, joined the IS&TT team earlier this year as Public Relations and Marketing Administrator. She had obtained relevant experience in her in-service training to obtain her diploma in Public Relations. IS&TT department would like to thank her for her contributions and wish her well in her future endeavors!

"I have learnt a lot from working with the IS&TT department and look forward to future challenges as I enter the working world."

Lihle Ngxokolo

IP Awareness

Think.Innovate.Disclose

Did you wonder what those black pens were about? The ones you received from the Department of Innovation Support & Technology Transfer? Well, for those who didn't realise, they have integrated screwdrivers and were aimed at encouraging innovation disclosures by our staff and researchers and introducing the innovation team.

Our Think.Innovate.Disclose campaign was a success and disclosure numbers are significantly higher than in previous years. Watch out for more innovation campaigns in 2013!

Inventors Mug



Something small, but highly sought after. All inventors received this mug that tells everybody they have their name on a patent.

Patent attorney visits



IP Talk: Mary-Ann Chetty with Ralph Van Niekerk from Von Seidels attorneys

Von Seidels patent attorney and partner, Ralph Van Niekerk, presented an interactive presentation entitled "An introduction to Intellectual Property" on the 7th August 2012 to a diverse audience of students, academics and external people. Free consultations were also held during the course of the day.

The purpose of the consultations and talks held each year is to engage with departments and students who want to learn more about intellectual property.