February 2013

UNIVERSITY OF JOHANNESBURG

Faculty of Science NEWSLETTER

CONTENTS

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FAREWELL, BUT NOT GOODBYE – PROF KINTA BURGER AND WELCOME PROF BHEKIE MAMBA

Prof Kinta Burger

Tribute to Professor IC Burger

It is with a great sense of ambivalence that we will bid farewell to our current Executive Dean, Professor Kinta Burger at the end of March, 2013. Professor Burger has been the Dean of the Faculty of Science since 2003, seeing it through an uneasy merger that materialised in 2005. Since that time, the Faculty has accomplished numerous achievements, despite several challenges. Included among the many successes is the increase in numbers of qualified academic staff, rated researchers, research outputs, and Research Centres of Excellence, as well as holding three of the six NRF chairs awarded to UJ, the establishment of the Soweto Science Centre (aimed at providing the much needed extra tuition to high school learners in the Soweto area), and an increased involvement in outreach programmes and community engagement activities.

All of this has been due to Professor Burger's commitment to excellence and quality, she does not settle for second best, because it does not lead to success. Such success could however not have been achieved by the Dean alone, for as rightly said by Andrew Carnegie: *"no man will make a great leader who wants to do it all by himself or get all the credit for doing it"*. Professor Burger is also an excellent team-player, and as elegantly put by Peter Drucker: *"the leaders who work most effectively, it seems to me, never say "I." And that's not because they have trained themselves not to say "I." They don't think "I." They think "we"; they think "team." They understand their job to be to make the team function. They accept responsibility and don't sidestep it, but "we" gets the credit…. This is what creates trust, what enables you to get the task done"*. Professor Burger is surrounded by an excellent and supportive team of Heads of various Departments and like a good leader she was able to communicate clearly her vision for the Faculty and the team members embraced it. It is a well-known fact that effective teamwork is one of the most important aspects.

Professor Burger's many leadership qualities such as intelligence, courage, patience, integrity, loyalty, charm, humour, discipline, self sufficiency, confidence, flexibility, resourcefulness, to name but a few, will be sorely missed in the Faculty. However, we can take solace in the fact that not only have we built our castles in the sky, but together we have also laid solid foundations under them. In the words of that Walter Lippman *"the final test of a leader is that he leaves behind him in other men, the conviction and the will to carry on"* and we are confident that this test Professor Burger has already passed. We wish her everything of the best in her next assignment as Registrar; we know she will continue her commitment to excellence and are thankful that she will still be part of the University of Johannesburg.

While in the famous words of Heraclitus *"the only thing that is constant is change"*, change is not an easy idea to embrace, but we hope things can only get better from here. We wish the next Executive Dean of Science a productive and successful tenure.

Prof Bhekie Mamba

Prof Bhekie Mamba, HOD of the Department of Applied Chemistry, has been appointed as the Dean of the Faculty of Science. We at the Faculty would like to extend a warm welcome to him as new Dean.

Prof Mamba was promoted to Senior Lecturer in 2002 followed by another promotion to Associate Professor in December 2007. In 2009 he was promoted to Full Professor and in 2010 he was awarded the status of Chartered Chemist (CChem) and Chartered Scientist (CSci) by the British Royal Society of Chemistry (RSC) and the British Science Council, respectively, the same year he received a C-rating from the National Research Foundation (NRF). In 2011, Prof Mamba was the recipient of the Distinguished Vice Chancellors Research award.

Top international awards for young researcher

Named by Thomas Reuters as one of the world's top 50 chemists of the decade (2001-2010), Professor Suprakas Sinha Ray, a Visiting Professor in the Department of Applied Chemistry at the University of Johannesburg (UJ), will be honoured for the contribution he has made in the field of polymer science and engineering.

The International Polymer Processing Society (IPPS), having its seat in Cleveland, USA, will confer the Morand Lambla Award on Prof Sinha Ray at the 29th IPPS conference to be held in July 2013 in Nuremberg, Germany. This is one of the most prestigious awards in the field of polymer science and engineering in the world and is conferred, annually, on a researcher younger than 45 years who deals with research into polymers.

Prof Sinha Ray who heads up the DST/ CSIR Nanotechnology Innovation Centre, CSIR, Pretoria, holds a PhD in Physical Chemistry from the University of Calcutta, India and was a recipient of the *Sir P C Ray Research Award* for the best PhD work.

Prof Sinha Ray's research group focuses on polymer-based advanced nano-structured materials and their applications and he is one of the most highly-cited authors in the field of Polymer Nanocomposites. He has authored and co-authored more than 140 articles, international journals and patents.

His recent honours and awards include Distinguish Professor at the Department of Chemistry, King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia (2012); Extraordinary Professor at the Department of Food Science, University of Pretoria, South Africa (2012); Extraordinary Adjacent Professor at the Department of Chemistry, University of the Free State (Quaqua), South Africa (2009); Prestigious CSIR President's award (2008); CSIR Materials Science and Manufacturing Director's award (2008); and JSPS Postdoctoral Fellowship from the Japanese government (2002).

Professor Suprakas Sinha Ray

RECENT PROFESSORIAL INAUGURATIONS IN THE FACULTY

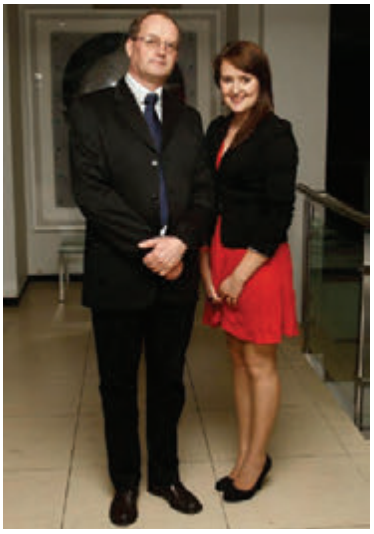
Two colleagues from the Faculty delivered their Inauguration Lecture since the previous Newsletter:

PROF AM STRYDOM

Prof AM Strydom of the Department of Physics recently delivered his Professorial Inauguration Lecture entitled *Condensed Matter Physics: Playground for a Fundamentalist.*

We live in an era in which the accelerating pace of technological development has become visible and tangible in everyday life. Advances at the burning edge of science and engineering are no longer confined to the realm of space exploration and sophisticated laboratory machinery that demonstrate the fascinating exploits of science. Novel developments in science have become entrenched in our everyday lives.

It comes as no surprise therefore that science and technology are increasingly being turned to as our only resort for solving the abundance of problems that mankind is facing in the twenty-first century. The glut of diseases of various origins, wide-spread famine and crop failures, and not least of all the worldwide abundance of war zones and conflict fill the headlines of daily news bulletins.



Professor AM Strydom and his daughter Carissa

Professor AM Strydom

It is my contention that the vast majority of mankind's problems and strife are nothing but his own doing. The global human population has reached numbers that are beyond the sustainable capacity of the lungs of the earth in its atmosphere, the fresh water supplies that run in rivers, and the nourishment beneath the surface of the earth. Mineral wealth and natural sources of oil are being usurped at alarming rates to meet man's selfish needs.

Man pretends to be knowledgeable on curtailing the numbers and densities of wild animals in their natural habitat to prevent over-grazing, or to prevent exhausting one source of animal sustenance to the detriment of another. And yet, the one species here on earth that is being allowed to flourish beyond measure, is man himself.

Population control is nowhere received with much endearment. Misplaced human-right sympathies such as dignity and the right to life means that we are in need of an alternative approach. Besides, in our day and age of human conflict, the reverence of human rights has become a lifeboat to the very salvation of mankind.

The alternative lies in science. Man is resourceful and resilient. He has a keenly developed sense of observation and he knows how to learn from what he observes.

Perhaps the only character trait of man that has resulted in his advancement over other occupants of the primate branch in the tree of life, is his culture of cumulative knowledge. Siblings observe and learn from parents. As skills such as hunting, accessing food, shelter and effective procreation serve the survival of a species, a deeper benefit can be found when siblings acquire better and better honed skills from parents over the generations. And herein lies the survival of a species to adapt when food and shelter should diminish, as much as a species is equipped to become diversified to meet the challenges of changing environments.

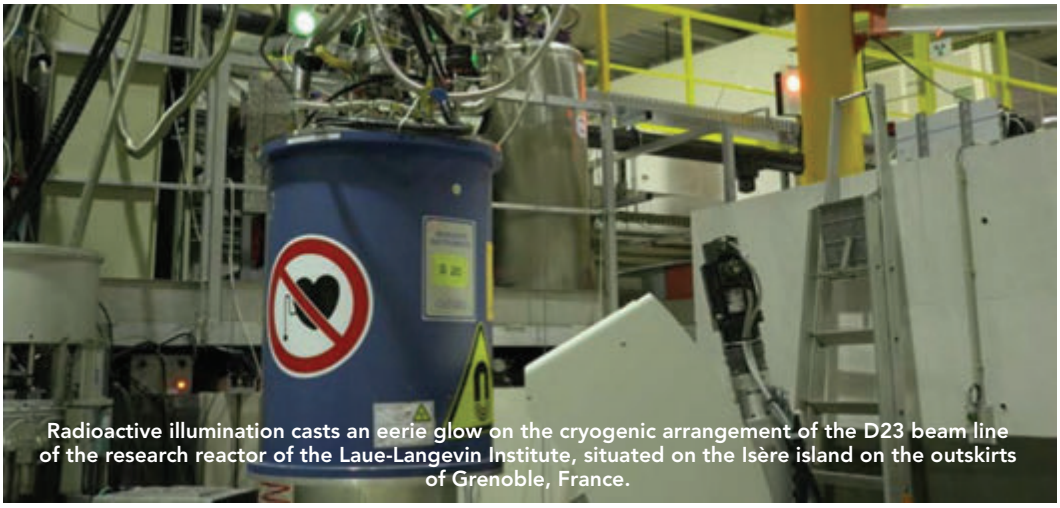
For mankind, probably the most persevering change in his environment has been the extent to which high-end technology has pervaded his everyday life. The desire for a convenient lifestyle is as much to blame as the need for ever-increasing sophistication.

The technology in our everyday gadgets of convenience such as cellular phones, microwave ovens, electrical motor vehicles and remote control commanders become ever more sophisticated, and yet the knowledge of the design, the construction, and the functioning of these marvels of technology are becoming increasingly lodged in the hands of smaller and smaller numbers of individuals and sections of society.

Controversially, populations today have become largely detached from the inner workings of science and technology, in spite of the achievements of science pervading everyday life of mankind as it has never done before. It took a few courageous and innovative individuals to build the first horseless carriage a hundred years ago. 50 years later, the know-how of the internal combustion engine became second nature for scores of admirable institutions of technical learning world-wide. Maintaining a motor vehicle on the road and in running condition was in the public domain. But 50 years hence, we seem to have come full circle: again few indeed can claim to know how to adjust the plethora of electronic and microprocessor controlled workings of a modern motor vehicle.

There is a dire need to bring science and learning of the fundamentals of nature – its laws, its concepts and its composition back into modern mainstream education. Science needs to be brought back as a compulsory part of school education for future generations of scientists and engineers to meet the challenges of technology that are becoming more and more complex.

It will be to mankind's detriment to tacitly allow knowledge of the fundamentals of the material world around us to become retained by an ever-increasingly smaller fraction of our population. This is the miserably small



Radioactive illumination casts an eerie glow on the cryogenic arrangement of the D23 beam line of the research reactor of the Laue-Langevin Institute, situated on the Isère island on the outskirts of Grenoble, France.

proportion of society in today's world who are able to manipulate knowledge into technical solutions.

Science has to become compulsory learning again for engineers, for medical practitioners, for technologists.

More so the need for vastly elevated investment into the fundamental exploits of science. Cumulative knowledge rests on the tenet of acquired knowledge. Increasing the volume of acquired knowledge is the pivot around which meaningful societal development revolves. For man to adapt to his changing environment, -whether due to exhaustion of the minerals and materials he mines from the earth, or whether due to changing climate, or whether due to new strains of viruses, there can be no alternative but to better equip himself and to prepare himself to innovate. Deepening as well as broadening of our fundamental knowledge of nature is the only way in which to rise to the challenges ahead.

And thereupon rests a second and much deeper-seated recourse which is, at the same time, the most noblest of pursuits of mankind: his hunger for knowledge; his yearning for an understanding of the world he inhabits.

Fundamental and curiosity-driven research is in need of vastly elevated levels of support.

I believe that fundamental research is most naturally served by Condensed Matter Physics, -a subject which seeks to explore the most simplest forms of co-existence in which the building blocks of nature interact with one another. Condensed Matter Physics observes the way in which particles coagulate, condense, and operate collectively on vast reaches of scales of magnitude; from sub-atomic and unseen, to interstellar currents of superfluid and superconducting particles in the interior of neutron stars and their ionized atmospheres.

Our research into the Physics of Condensed Matter occupies itself with magnetism as a most profitable window into the atomic world. We observe the way in which order in time and in space is being created among fundamental particles in nature, -the electrons. The experiments we do are focussed at studying a variety of physical properties at very low temperatures, since order among electrons require the major part of thermal randomizing energy to first be removed from the lattice which hosts the electrons. We use applied magnetic fields to interact with electronic order. The interaction can be benevolent to electronic order, or it may suppress the order.

When the transition from one phase into another – between disorder at high temperature and the ordered arrangement of the magnetism on electrons at low temperatures, is purposefully suppressed towards the absolute zero of temperature, behaviour so strange starts to develop as to confound some of our basic laws of nature. A concept so elementary as the mass of the electron loses its traditional meaning.

There is mounting evidence that the quantum critical state which clouds the behaviour of a phase transition occurring at zero Kelvin, presents an alien state of matter. A most exemplary and measurable quantity inside a laboratory is the heat capacity of matter. It measures the amount of heat needed to raise the temperature of a substance. Heat capacity is intimately related to the amount of disorder in matter. Higher temperature equals more disorder. However, quantum criticality, through measurements of heat capacity, presents a picture of entropy that remarkably piles up towards zero temperature. More is the mystery that this piling up of disorder occurs at a logarithmic rate.

Helium re-liquifier

The situation is anathema to our understanding of order and disorder in nature, and to our foundations in learning of energy and of temperature.

Our best efforts at gauging this situation probes temperatures down to within a few micro-Kelvin of the absolute zero. The emerging picture is one of infinitely massive disorder piled up at zero Kelvin, a situation that is precariously balanced between order and disorder – of matter at the quest of a singular phase transition as the only way in which to release unimaginable amounts of disorder…a situation not unlike what the universe might have looked like…one millisecond before the Big Bang.

ABBREVIATED CV OF PROFESSOR STRYDOM

Prof Strydom obtained his BSc degree from the former Rand Afrikaans University, and his Honours Degree in Physics, *cum laude*, from the same University. He was awarded the Chancellor's medal (Faculty of Science, RAU) after he obtained his MSc in Physics with distinction, also from this University. He then worked as a scientist for a decade at the Department of Physical Metallurgy, and Department of Nuclear Energy Systems of the former Atomic Energy Corporation. Following this, he joined the Physics Department of the University of the Witwatersrand where he obtained his PhD. He joined the Department of Physics of the University of Johannesburg in 2001 and served as its Head of Department

Beam open…neutrons obtained from the high-flux reactor at the Laue-Laue Institute in Grenoble are a very valuable tool with which to study magnetism and related phenomena in the group of Prof André Strydom.

since 2006. He has been Professor of Physics from 2007 and has served as the Scientific Director of the Science Faculty Central Analytical Facility (Spectrau) at the University of Johannesburg from 2007.

Prof Strydom has received the following local awards: UJ Science Faculty Prize of 2005 for most outstanding achievement in research publications output on Senior Lecturer level in 2004, UJ Science Faculty Prize of 2008 for most outstanding achievement in research publications output on Associate Professor and Professor level in 2007, UJ Science Faculty Prize of 2011 for most outstanding achievement in research publications output on Associate Professor and Professor level in 2010. In the same year, Prof Strydom had the highest number of research publication units across UJ. In 2007, he was awarded the position of Research Professor in UJ, which enables a focus on research.

During 2012, Prof Strydom received a long-term appointment as Visiting Professor of the Institute of Physics of the Chinese Academy of Sciences in Beijing.

His research field is in Condensed Matter Physics, with specializations in Magnetism, in Thermal Properties of Matter, and the Ground States of Matter. He has authored more than 150 international peer-reviewed research papers to date, numerous of which are single-authored papers. 77 of these papers have been published during the past 6 years.

He has been successful in attracting research grants for his experimental research, including two Grant Awards under the National Equipment Programme of the National Research Foundation, from SASOL, from the German Research Foundation, and from the Research Committee of the University of Johannesburg. He is a core member of a highly-endowed European Research Committee Advanced Researcher Grant, which is seated in Vienna.

Prof Strydom is engaged in productive research currently with scientists in Germany, Austria, France, Poland, England, Sweden, Russia, Slovakia, India, the United States of America, Japan and China, and in South Africa with scientists attached to the Universities of the Witwatersrand, Pretoria, Free State, Walter Sisulu, Western Cape, Tswane University Technology, SASOL, and the CSIR.

He is a regular visitor to large science facilities such as the ISIS Neutron and Muon Spallation source in England, the Research Reactor at the European Photon and Neutron Science Campus in Grenoble, the High Field Pulsed Magnet Facility in Germany, and the Paul Scherrer Institute in Switzerland on the basis of his enduring successes with scientific research proposals submitted to these extremely competitive facilities.

A publication titled *Thermal and electronic transport in CeRu2Al10: Evidence for a metal-insulator transition, Volume 404, Issue 19, October 2009, Pages 2981 – 2984,* by A M Strydom has since 2013 been listed as the most highly cited article published by *Physica B-Condensed Matter* over the previous 5-year period since 2008. It is notable furthermore that this is also the only single-author article among the current 25 top cited articles in *Physica B-Condensed Matter.* The peer-reviewed scientific journal Physica B – Condensed Matter is one of the foremost and oldest European journals in the subject field of Condensed Matter Physics. The journal keeps a regular public list of the citations of their 25 highest-ranking articles. See http://www.journals.elsevier.com/physica-b-condensed-matter/most-cited-articles/

PROF SIMON CONNELL

Prof Simon Connell of the Department of Physics recently delivered his Professorial Inauguration speech on the topic of *Diamonds, Atoms, Nuclei, Quarks, the Higgs-like Boson and the Quantum Renaissance! Quo vadis - humanity?*

Prof Simon Connell with Prof Kinta Burger, Executive Dean, Faculty of Science

Prof Simon Connell

The story begins with Diamond. Natural diamonds had their genesis in the depths of the earth and are several billions years old. They were brought to the surface amid the violence of a volcano, several million years ago, after long residence times. They contain a rich inclusion chemistry, which provides a window through which planetary science processes can be studied. The early work deployed nuclear techniques based on accelerated beams (heavy ions and protons) to the study of diamond. Soon, these beams were

supplemented with those of exotic particles, such as positrons and muons. The extreme physical, optical and electronic properties of diamond, which endow it with its brilliance and durability as a gem, and which make it impractical to process to other uses, now emerged as important advantages. Theoretically, a diamond detector would outperform any other by orders of magnitude, surviving extreme radiation conditions, unperturbed by thermal noise, and having fantastic response times. A diamond-based semiconductor could conceivably tolerate currents and voltages on the scale of a national electricity grid, or could operate at higher speeds with less power requirements than the fastest chip currently available. Still more incredibly, as the new quantum renaissance progressed in physics, diamond has emerged as the premier host in which we may hope to realize quantum computers and robust arrayed sources of single photons for quantum communication. These novel applications require very high quality synthetic diamond, rather than the relatively dirty natural material. A large body of work has focused on the study of diamond for these technologies. Linking back to accelerators, ultra-relativistic beams of electrons and positions were directed onto diamond in aligned incidence to the lattice. In this way ultra-hard polarized and quasi-monochromatic gamma ray beams can be produced and studied. Currently, this research is extending the coherent regime with the concept of a diamond undulator in an effort to achieve free electron lasing in the gamma ray regime. A related study aimed at diamond based synchrotron generated X-ray beam optical elements has led to the pursuit of ultra-pure, ultra-low strain and perfectly-processed diamond. This is of course a dream, but it afforded the opportunity to study and work with diamond at ever-higher quality. The work at accelerators in diamond physics progressed alongside studies of Nuclear Physics and High Energy Physics at the same facilities. Several years ago the work at CERN was extended to include the participation in the Large Hadron Collider (LHC) within the ATLAS collaboration. This is a global venture where thousands of scientists collaborate to study firstly the physics of the Standard Model (cosmic DNA), and ultimately, already commencing, physics beyond this. This shared discovery opportunity is a premier fertile research arena. It has led to massive technology transfer back to the group, where one field of innovation has been the use of modern instrumentation and computing techniques to reshape the medical diagnostic PET technique for the detection of light elements in the environment. The first working technology demonstrator can "see" diamond within kimberlite. The technology is also being adapted for explosive detection. A new technique to permanently deform diamond plates to specification has been developed, which will be tested on the LHC beam as an extraction system to enable fixed target experiments.

The fascinating story of diamond enabled research linking Solid State-, Nuclear-, High Energy- and Quantum- Physics continues.

ABBREVIATED CV OF PROFESSOR CONNELL

Prof Simon H Connell, from the Department of Physics at the Faculty of Science, University of Johannesburg obtained his PhD in Physics at Wits, having been allowed to skip an MSc due to his Honours being obtained with distinction. Before this, he also taught Science and Maths at high school for two years. After more than 25 years at Wits, he joined this University 4 years ago.

His research interests have included Solid State Physics, (especially for diamond), Nuclear Physics, Particle Physics, Quantum Physics and Applied Physics. The common thread has been the use of diamonds, particle accelerators and nuclear instrumentation. He has published over 130 research articles in international journals, has more than 350 presentations at international and local conferences and he has graduated more than 30 Postgraduate students. His awards include a NRF B-rating, the Silver Medal of the South African Institute of Physics, the British Association Medal (Silver) of the S2A3, the Meiring Naude Medal of the Royal Society of SA, of which he is a fellow, the Vice Chancellor's Research Award (WITS) and the Presidents Award of the FRD.

His diamond physics has a particular focus on fundamental research in support of the possibility of major new technologies in diamond such as diamond radiators, diamond electronics, diamond based X-ray optics and diamond based quantum devices. The diamond-enabled physics at higher-energy includes studying QED phenomena under conditions of strong fields and coherence, exploiting aligned incidence of beams on crystals. Accelerators of many kinds and nuclear experimental techniques are the basis of the experimental research methodology. The work is performed using local facilities, as well as various accelerator laboratories, including both iThemba LABS in South Africa, as well as international facilities such as CERN, Jefferson Lab, Rutherford Lab, the ESRF, and the Paul Scherer Institute.

Some highlights are the development of a 3D microscope for hydrogen, and the discovery of exotic states and dynamical processes for muonium in diamond. As part of a group he has used diamond to generate and study the highest energy quasi-monochromatic polarized photons ever produced in a laboratory. This work may also lead to the world's first gamma ray laser beam. More recently, within the SA-CERN Programme, he pioneered the involvement of South Africa in joining the ATLAS experiment at the Large Hadron Collider at CERN to search for the Higgs Boson. UJ was therefore the first University from South Africa to participate in this search – and UJ staff and students are co-discoverers of the recently announced Higgs-like Boson. Now the programme has grown and several Universities participate. This work also lead to a High Performance Computing Cluster being established at UJ and UJ becoming a founder-member of the SA-Grid.

Innovation is important to Prof Connell, and he has worked on commercialising several patents arising from the research. An example is a device that uses nuclear medical technology to visualize diamonds within kimberlite rock in a run-of-mine online sorting scenario. He is currently being assisted by the UJ Commercialization Office to patent an extension of this technology to explosive detection, as well as a device to use a quantum communication channel to protect a classical communication channel or more generally to secure a perimeter.

Prof Connell has participated in several projects in the service of the discipline and is currently President of the South African Institute of Physics.

UJ GEOLOGY CELEBRATES 413 YEARS OF EXPERTISE

Four hundred and thirteen years. Compared to the geological time scale, that is a blink of the eye but in everyday terms, four-and-a-bit centuries is a very long time. How does this relate to this short article? Read on.

Left to right, front and back: Chris Roering, Willem van Biljon, Nic Beukes, Bruce Cairncross, Dirk van Reenen and Harry Brown, photographed in the UJ Geology Department Reading Room, November 2012.

UJ is an institution formed by the merger of the Rand Afrikaans University (RAU) and the Technicon Witwatersrand (TWR) in 2004. In November 2012, a reunion of the heads of the Department of Geology was held, those who have worked for the old RAU since it was established in 1968 and the head of the Department of the TWR who was acting HOD during the RAU-TWR merger. The reason for the get-together was twofold. Firstly, all six HOD's are still alive and well and living in Johannesburg, except one who retired to Cape Town. Secondly, all are still actively working in geology, either via teaching, research or consulting. This must be a virtually unique situation where all of the people who have headed up a department since its inception are still alive, well and working. If one looks at UJ (and historically the old RAU), there is probably no other department that can boast this claim.

IN ORDER OF SUCCESSION THESE ARE:

Professor Willem van Biljon
(1 June 1967 to 31 December 1983)

Professor Chris Roering
(1 January 1984 to 31 December 1994)

Professor Dirk van Reenen
(1 January 1995 to 31 December 1997)

Professor Nic Beukes
(1 January 1998 to 31 December 2002)

Professor Bruce Cairncross
(1 January 2003 to present)

Mr Harry Brown
(1 January 1990 to 2004; Deputy Head 2004 to present)

Willem van Biljon lives in Johannesburg while Chris Roering retired to Cape Town. The remaining four individuals, Nic Beukes, Dirk van Reenen, Bruce Cairncross and Harry Brown are still active in the Department of Geology. Dirk van Reenen had a stint as the Dean of the Faculty of Science before returning to the Department to pursue his research interests in the Limpopo while Nic retired at the end of 2010, but, because of his status as an A1-rated NRF researcher, was re-appointed on a 3-year contract and continues to supervise post-graduates, publish his research and still spend time in the field. Bruce Cairncross is the current Head of Department and Harry Brown is the Deputy Head on the UJ's Doornfontein campus. It is also worth noting that three of the existing staff members, Elsje Maritz, Hennie Jonker and André Smit have served under all five HOD's. By the way, four hundred and thirteen years is the combined ages of the six HOD's!

AWARDS

ENERGY EDUCATION AWARD TO LECTURER

Prof John Ledger from the Department of Geography, Environmental Management & Energy Studies from the Faculty, has received the South African National Energy Association NPC (SANEA) Energy Education Award during their recent Energy Awards 2012 ceremony. With this Award ceremony, SANEA celebrates and pays tribute to the enthusiastic South Africans who are making effort to ensure a vibrant energy future.

The Energy Education Award is for a lecture, presentation, technical paper, article or other educational activity which serves to further the understanding of energy and its role in sustaining human endeavours.

FACULTY OF SCIENCE AWARDS

The Faculty of Science awards each year prizes for the highest research output produced in the previous year – one to an academic staff member appointed on the level of Associate Professor or Professor and one to an academic staff member appointed on the level of Lecturer or Senior Lecturer, the Faculty award for Teaching Excellence and the Faculty award for service beyond the normal call of duty.

Dr Durand, Mrs Lutsch, Prof Kinta Burger, Prof Van Wyk. Insert Dr Muller

THE RECIPIENTS OF THE 2011 FACULTY REWARDS ARE:

Professor B-E van Wyk, Professor in the Department of Botany, received the Faculty award for publication output at Professorial level.

Professor van Wyk joined the UJ (RAU at the time) in 1985. He has an enviable international reputation in plant taxonomy, ethnobotany and indigenous plant use and he was recently awarded an NRF Research Chair in this field.

He is an enthusiastic, tireless and gifted worker with an average of more than 10 journal papers per year over the past 28 years and receives this award to recognize his output in 2011 of 11.59 publication units, the highest in the Faculty.

Dr AJ Muller, Senior Lecturer in the Department of Chemistry received the Faculty award for publication output at Lecturer/Senior Lecturer level.

Dr Muller left UJ for Free State University a while back but re-joined UJ in 2008. He is a passionate crystallographic chemist who has succeeded in establishing himself in his research niche.

He is intensely involved with, and committed to, his students and projects, both here and at other institutions.

Evidence of his dedication is this award which is given on the basis of Dr Muller's output in 2011 of 6.36 publication units. This is the highest output at his level and 6th overall in the Faculty as a whole.

Dr JF Durand, Senior Lecturer in the Department of Zoology received the Faculty award for Teaching Excellence.

Dr Durand joined the UJ (RAU at the time) in 1998. He has shown consistent commitment to high quality teaching over many years and besides his dedication to his students, has shown a high level of involvement in schools, non-professional groups as well as in public in general.

Dr Durand founded the SA Society for Amateur Palaeontologists and in 1996 he was appointed by the Minister of Art, Culture, Science and Technology to the Board of the Foundation for Education, Science and Technology.

He has a broad holistic vision of how his professional discipline relates to the living world and is passionate about getting his message across.

Mrs EM Lutsch, Technical Officer in the Department of Zoology, received the Faculty award for service beyond the normal call of duty.

Mrs Lutsch joined the UJ (RAU at the time) in 1990. She enjoys an enviable reputation for dedication, commitment and excellence among her colleagues and students in her Department. She is known as a sympathetic and diligent supporter of teaching and research in her Department and is always willing and ready to do more than just what is required, frequently at some inconvenience to herself.

A staff member in a different department provided this accolade – "many departments envy the Department of Zoology and wish they had someone like her".

MASTERS' SKILL COURSE IN THE NETHERLANDS

The South Africa-VU University of Amsterdam-Strategic Alliances (SAVUSA) Corporation bestowed a scholarship through their SKILL-Programme to Siobhan Jenkins, an MSc Biochemistry student of Dr Marianne Cronje. SAVUSA awarded Siobhan the opportunity to be accredited in a Masters' Skill Course at a Netherlands University and she will be attending a course in Biophysical Imaging over a 5 week period at Wageningen University and Research Center (WUR). The course covers techniques such as: confocal laser scanning microscopy, fluorescence (life-time) microscopy, NMR Imaging (MRI), ultra-microscopy covering atomic force and scanning electron (SEM) and then analysis, manipulation and interpretation of data. At the end of the course Siobhan will have gained knowledge and experience (laboratory experiments) in techniques used for imaging biological systems.

Siobhan was one of 16 South Africans chosen for this prestigious opportunity out of thousands of applicants.

CANSA SHAVATHON

The Department of Biochemistry will be hosting its second CANSA Shavathon on UJ's APK Campus on 1 March 2013. 2013 marks the 10th Anniversary for the CANSA Shavathon Initiative. This charity event was inspired through the Biochemistry's Cancer Research Group, headed by Dr Marianne Cronjé, with the main focus on the ability of novel metal compounds and indigenous medicinal plants to induce cell death in cancer cells; these *metallo-drugs* are in the process of being patented. Another Biochemistry Research Group, under the supervision of Professor Liza Bornman, is evaluating the relationship between vitamin D status, age, gender, ethnicity, vitamin D receptor functionality, genetics as well as epigenetics of the Vitamin D Receptor gene that has been implicated in the susceptibility of certain individuals to various types of cancer development. Some scary South African cancer statistics for thought: 1 in 23 SA men are diagnosed with prostate cancer and 1 in 29 SA women are diagnosed with breast cancer with 1 in 35 SA women diagnosed with cancer of the cervix. Skin cancer is the most common cancer in SA with approx. 20 000 new cases being reported each year (all stats obtained from CANSA website www.cansa.org.za).

UJ SOWETO SCIENCE CENTRE REOPENING AND WELCOME DAY 2013

Kamohelo Mosebi from Maryvale College gave a moving speech representing her class. She will be in grade 11 this year and still participating in the Science Centre activities. With her is the Executive Dean of Faculty of Science at UJ, Prof Kinta Burger and the Director of UJ Soweto Science Centre, Prof Azwinndini Muronga.

2012 grade 12 learner, Oletilwe Shuping from St. Matthews School in Soweto, got 7 distinctions for all her subjects. On this day she motivated the grade 12 class of 2013 to do well. With her are the Executive Dean of the Faculty of Science at UJ, Prof Kinta Burger and the Director of UJ Soweto Science Centre. Oletiwe received a standing ovation.

Eight hundred Grade 10 – 12 learners in Mathematics and Science from schools in Soweto and the surrounding regions attended the opening and welcome day 2013 of the UJ Soweto Science Centre on the Soweto Campus of the University of Johannesburg. They were accompanied by their parents, educators, and principals. The highlight of the program was the celebration of the achievements of the year 2012 including the Grade 12 results and activities that were hosted.

Learners attend tutorials and laboratory sessions at the Science Centre on Friday afternoons. On Saturdays and during school recesses they attend classes in Mathematics, Life and Environmental Sciences, Physical Sciences and English.

In addition to the academic programme, the UJ Soweto Science Centre offers and hosts other programmes and projects such as exhibitions, science competitions, school debates, public lectures, teacher development programmes, science awareness projects and a science day at a selected school. Most of these programmes are open to all learners from Grade 1 to 12 as well as to the general public.

The UJ Soweto Science Centre is a flagship division of the Faculty of Science at the University of Johannesburg.

FASCINATING SCIENCE FACTS