FACULTY OF SCIENCE

RESEARCH SHOWCASE

17 November 2017

Biochemistry

* + - * Systems biology and the silicon cell (Dr Dawie van Niekerk; ddvniekerk@sun.ac.za)
			* Learning from Nature's pharmacy (Prof Marina Rautenbach; mra@sun.ac.za)
			* From infection and disease to drug discovery (Dr Marianne de Villiers; mdevilliers@sun.ac.za)
			* Solving puzzles with bioinformatics (Prof Hugh Patterton; hpatterton@sun.ac.za)
			* Steroid power (Dr Nicky Verhoog; nverhoog@sun.ac.za)

Botany and Zoology

* + - * Sharksafe Barrier Project – Keeping humans and sharks safe (Prof Conrad Matthee, cam@sun.ac.za)
			* Hormone disrupting activity in our waters: Hype or Hurry (Prof Hannes van Wyk, jhvw@sun.ac.za)
			* Polychaete Research: Pests, Aliens and Fish food Dr Carol Simon, csimon@sun.ac.za
			* Marine research and applications (Prof Sophie von der Heyden, svdh@sun.ac.za)
			* Bamboo research (Prof Dave Richardson, rich@sun.ac.za)
			* Working for water (Prof Dave Richardson, rich@sun.ac.za)

Chemistry and Polymer Science

* + - * SASOL polymer research ( Prof Albert van Reenen/Prof Harald Pasch  ajvr@sun.ac.za )
			* Molecules on a mission, GOMOC (Group of Medicinal and Organic Chemistry) (Prof  Willem van Ottlerlo  wvo@sun.ac.za Dr Gareth Arnott  arnott@sun.ac.za)
			* Designer porous materials (Prof Len Barbour, ljb@sun.ac.za)
			* A radical approach to functional materials (Prof Delia Haynes, dhaynes@sun.ac.za)
			* Nanomedicine – Polymers in the field of drug delivery (Prof Bert Klumperman bklump@sun.ac.za )
			* Nano-structured materials – Functionality and responsiveness (Prof Bert Klumperman bklump@sun.ac.za)

Earth Sciences

* + - * Elemental and isotopic analysis applied to natural resources and exploration

(R. Rossouw and Dr. Laura Bracciali, CAF, bracciali@sun.ac.za )

* + - * Groundwater in the Western Cape: Quality, quantity and sustainability and its role in securing the City of Cape Town’s water supply (Dr Jodie Miller jmiller@sun.ac.za )
			* Petrogenesis & metallogeny of mafic-ultramafic intrusions (central-southern Africa) – (Dr Martin Klausen and Dr Hielke Jelsma, Anglo American Exploration; klausen@sun.ac.za )
			* Controls of trace metals in seawater (Dr Susanne Fietz sfietz@sun.ac.za )
			* Controls on the distribution of the deleterious elements bismuth, cobalt and cadmium in the base metal sulphide deposits of the Mesoproterozoic Aggeneys-Gamsberg ore district, South Africa (Dr Bjorn von der Heyden bvon@sun.ac.za )
			* Applying X-ray Compositional MicroAnalytical tools in the mining industry: a case study using electron microscopy EDS and WDS analysis (Dr Lydia-Marie Joubert, CAF lydiaj@sun.ac.za )
			* High resolution SEM imaging and X-ray elemental  analysis for characterization of industrial samples (Dr Lydia-Marie Joubert, CAF lydiaj@sun.ac.za )

Mathematical Sciences

Applied Mathematics division

* Automated identification of tsetse fly wing vein intersections (Prof Ben Herbst herbst@sun.ac.za))
* Predicting the effect of biofilm growth on the pressure drop over a biofilter (Dr Sonia Woudberg woudberg@sun.ac.za)
* Hydrodynamic and sediment transport modelling to evaluate dredge disposal sites (Dr Hardus Diedericks ,hardus@sun.ac.za and Prof Francois Smit, fsmit@sun.ac.za)

Computer Science division

* + - * DEEPSEA: Dynamic Symbolic Execution for Java (Prof Jaco Geldenhuys, geld@sun.ac.za) & (Prof Willem Visser, visserw@sun.ac.za)
			* GREEN: Reducing, Reusing and Recycling Constraints in Program Analysis (Prof Jaco Geldenhuys, geld@sun.ac.za) &  (Prof Willem Visser, visserw@sun.ac.za)
			* Learning dynamics of neural networks in reinforcement learning (Dr Steve Kroon, kroon@sun.ac.za)
			* JPF-Android (Me HM Botha, heilamvdm@gmail.com)

Mathematics division

* + - * Assembling three-dimensional spaces from building blocks (Dr Bruce Bartlett bbartlett@sun.ac.za )
			* Analysis of random tree structures (Prof Stephan Wagner swagner@sun.ac.za)

Microbiology

* Isolation and molecular identification of biosurfactant producing bacteria from a wastewater treatment plant (Dr. Thando Ndlovu; thandon@sun.ac.za (Khan Lab))
* Pilot-scale CPC solar disinfection systems for rainwater treatment (Mr. André Strauss; 16974492@sun.ac.za (Khan Lab))
* Sunny side up: using an antioxidant producing bacterium to enhance pigmentation in egg yolks of laying hens (Ms. Tersia Conradie; tcon@sun.ac.za (Jacobs Lab))
* Plant growth-promoting properties of fynbos rhizobia and their diversity (Mr. Casper Brink; 16058623@sun.ac.za (Jacobs Lab))
* Sporatec: indoor air quality service (Prof. Karin Jacobs; kj@sun.ac.za / Mr. JJ Kriel; jjkriel@sun.ac.za (Jacobs Lab))
* Estimating the fate and loads of emerging contaminants and drugs of abuse (DOA) within South African surface waters (Mr. Edward Archer; earcher@sun.ac.za Wolfaardt Lab))

Physics

* Bayesian statistics in science and industry (Prof Hans Eggers, hce@sun.ac.za )
* Soft Condensed Matter Theory in Science and Industry (Prof Kristian Müller-Nedebock kkmn@sun.ac.za )
* Laser based imaging and microscopy (Dr Pieter Neethling, pietern@sun.ac.za )
* Lasers and ion trapping (Dr Hermann Uys, hermann@sun.ac.za )
* Laser diagnostic techniques (Prof Erich Rohwer, egr@sun.ac.za )
* Nuclear physics (Dr Paul Papka, papka@sun.ac.za )

Physiological Sciences

* Diseases of national priority: Unravelling Disease Mechanisms in Cancer, Cardio-Oncology & Neurodegeneration (Prof Anna-Mart Engelbrecht, ame@sun.ac.za)
* Countering lifestyle-mediated diseases onset in South Africa (Prof Faadiel Essop , mfessop@sun.ac.za)
* Regenerative medicine – an extreme sport (Prof Carine Smith, csmith@sun.ac.za )