



UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

Faculty of Science
Fakulteit Natuurwetenskappe

RESEARCH SHOWCASE
NAVORSINGSTENTOONSTELLING

17 November 2017

Biochemistry

- ❖ Systems biology and the silicon cell (Dr Dawie van Niekerk; ddniekerk@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 Otterlo; 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 & Prof Catharine Esterhuysen; ce@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 & 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 & 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 & Mr Shane Josias)
- ❖ Predicting the effect of biofilm growth on the pressure drop over a biofilter (Dr Sonia Woudberg; woudberg@sun.ac.za & Ms Jacoline van Jaarsveld)
- ❖ Hydrodynamic and sediment transport modelling to evaluate dredge disposal sites (Dr Hardus Diedericks; hardus@sun.ac.za & 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)
- ❖ The diversity of diazotrophic bacteria associated with *Aspalathus linearis* and *Cyclopia* spp. plants (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)
- ❖ Slowing down ageing and chronic disease development: Nature has the answer (Prof Carine Smith)

Thanks for supporting our research.

Dankie dat u ons navorsing ondersteun.

Kind regards/Groete

Prof. Louise Warnich

Dean/Dekaan

Faculty of Science/ Fakulteit Natuurwetenskappe

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