

**Welcome to the  
Graduation Ceremony  
of the  
University of Johannesburg  
28 September 2016 at 17:00**

**Welkom by die  
Gradeplegtigheid  
van die  
Universiteit van Johannesburg  
28 September 2016 om 17:00**

**Le a Amogelwa  
Moletlong wa Dikapešo wa  
Yunibesithi ya Johannesburg  
28 Lewedi 2016 ka 17:00**

**Niyamukelwa  
eMcimbini wokweThweswa kweZiqu  
weNyuvesi yaseJohannesburg  
28 kuMandulo 2016 ngele-17:00**

# **UNIVERSITY OF JOHANNESBURG**

## **CHANCELLOR**

Prof NS Ndebele  
BA (Lesotho), MA (Cambridge UK), PhD (Denver USA)

## **SENIOR OFFICE-BEARERS OF THE UNIVERSITY**

### **VICE-CHANCELLOR AND PRINCIPAL**

Prof IL Rensburg  
BPharm (Rhodes), MA, PhD (Stanford USA)

### **DEPUTY VICE-CHANCELLOR: ACADEMIC**

Prof A Parekh  
BA, BA Hons, MA (UDW), MA (Kansas USA), DPhil (UDW)

### **DEPUTY VICE-CHANCELLOR: RESEARCH, INTERNATIONALISATION AND THE LIBRARY**

Prof T Marwala  
BS Eng (Case Western Reserve USA), MEng (UP), PhD (Cambridge UK)

### **REGISTRAR**

Prof IC Burger  
BA, HEd, BA Hons, MA, PhD (RAU)

### **DEPUTY VICE-CHANCELLOR: FINANCE**

Mr J van Schoor  
BCom, BCom Hons (RAU), CA (SA)

### **DEPUTY VICE-CHANCELLOR: EMPLOYEES AND STUDENT AFFAIRS**

Ms KC Mketi  
BA (Bophut), BA Hons (RAU), MBL (Unisa)

### **GENERAL COUNSEL**

Prof PH O'Brien  
BCom, LLB, LLM, LLD (RAU)

### **ADVISOR TO THE VICE-CHANCELLOR: SPECIAL PROJECTS**

Mr DM Manganye  
NDip, BTech (UJ)

## **EXECUTIVE DEANS**

### **FACULTY OF ART, DESIGN AND ARCHITECTURE**

Prof F Freschi  
BA (Wits), BA Hons (UCT), PhD (Wits)

### **FACULTY OF ECONOMIC AND FINANCIAL SCIENCES**

Prof A Dempsey  
BCom, BCom Hons, MCom (RAU), CA (SA)

### **FACULTY OF EDUCATION**

Prof SJ Gravett  
BA, HEd (PU for CHE), BEd, MEd, DEd (RAU)

### **FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT**

Prof S Sinha  
BEng, MEng, PhD (UP)

### **FACULTY OF HEALTH SCIENCES**

Prof A Swart  
NDip, NHDip (TWR), BEd, MEd (RAU), DTech (TWR)

### **FACULTY OF HUMANITIES**

Prof AB Broadbent  
BA, BA Hons, MPhil, PhD (Cambridge UK)

### **FACULTY OF LAW**

Prof LG Mpedi  
B Juris, LLB (Vista), LLM (RAU), LLD (UJ)

### **FACULTY OF MANAGEMENT**

Prof D van Lill  
BSc, BSc Hons, MSc, PhD (US)

### **FACULTY OF SCIENCE**

Prof D Meyer  
BSc, BSc Hons, MSc (RAU), PhD (California USA)

## **MEMBERS OF COUNCIL**

### **CHAIRPERSON**

Prof RD Marcus

### **DEPUTY CHAIRPERSON**

Mr MS Teke

### **MEMBERS**

Prof H Abrahamse

Mr FM Baleni

Prof IC Burger

Mr JP Burger

Mr D Bvuma

Ms S Dlamini

Mr TJ Dikgole

Mr CR Gebhardt

Prof D Hildebrandt

Mr G Khosa

Prof C Landsberg

Dr DSS Lushaba

Dr J Manyaka

Ms BJ Memela-Khambula

Dr P Mjwara

Mr RM Mkhonto

Mr M Mnye

Prof A Mohammadali-Haji

Mr MJN Njeke

Prof A Parekh

Prof IL Rensburg

Dr WP Rowland

Mr KB Sibiyi

Mr K Thomas

Mr J van Schoor

Mr M White

### **PRESIDENT OF CONVOCATION**

Mr RM Mkhonto

# Programme

**Wednesday, 28 September 2016 at 17:00**

To ensure good order during the ceremony all those present are requested to leave the venue only after the ceremony has been concluded.

The academic procession enters the venue and the members of the procession take their seats on the stage.

The choir sings Gaudeamus Igitur (or a CD is played) while those present remain standing.

The Chancellor constitutes the congregation.

Choir.

Welcome.

The relevant Executive Dean presents the candidates to the Chancellor for the conferment of a degree/diploma/certificate.

Singing of the National Anthem.

The Chancellor dissolves the congregation.

The academic procession leaves the venue while those present remain standing.

## Lenaneo

**Laboraro, 28 Lewedi 2016 ka 17:00**

Go kgonthiša gore dilo di sepela ka tshwanelo nakong ya moletlo, bohle bao ba tlliego moletlong ba kgopelwa go tšwa ka lefelong la kopano feela ka morago ga ge moletlo o phethilwe.

Sehlopha sa dirutegi se tsena ka lefelong la kopano gomme maloko a sehlopha se a dula ditulong tša ona sefaleng.

Khwaere e opela Gaudeamus Igitur (goba CD e tlo bapalwa) mola bao ba lego gona ba tšwela pele go ema.

Mokhanseliri o kopanya phuthego.

Khwaere.

Dikamogelo.

Hlogophethiši ya maleba ya lefapha e hlagiša dialoga go Mokhanseliri gore di newe tikrii/diploma/setifikeiti.

Go opelwa ga Koša ya Setšhaba.

Mokhanseliri o phatlalatša phuthego.

Sehlopha sa dirutegi se tšwa ka lefelong la kopano mola bao ba lego gona ba tšwela pele go ema.

# **Program**

**Woensdag, 28 September 2016 om 17:00**

Ter wille van die ordelike verloop van die plegtigheid  
word alle aanwesiges vriendelik versoek  
om die lokaal nie voor die einde van die plegtigheid te verlaat nie.

Die akademiese proses kom die lokaal binne en neem op die verhoog plaas.

Die koor sing Gaudeamus Igitur (of 'n CD word gespeel) terwyl die aanwesiges staan.

Die Kanselier stel die kongregasie saam.

Koor.

Verwelkoming.

Die betrokke uitvoerende dekaan stel die kandidate aan die Kanselier voor vir die  
toekenning van 'n graad/diploma/sertifikaat.

Sing van die volkslied.

Die Kanselier ontbind die kongregasie.

Terwyl die aanwesiges bly staan, verlaat die akademiese proses die lokaal.

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# **Uhlelo**

**uLwesithathu, 28 kuMandulo 2016 ngele-17:00**

Ukuze kuqinisekiswa ukuthi konke kuhamba kahle ngesikhathi somcimbi, bonke  
abakhona bacelwa ukuba baphume kuphela endaweni yomcimbi uma umcimbi  
usuphelile.

Udwendwe lwezifundiswa lungena endaweni yomcimbi bese luyohlala esiteji.

Ikhwaya icula i-Gaudeamus Igitur (noma kudlalwa i-CD) ngenkathi abakhona besamile.

USekela-Shansela uhlanganisa ibandla.

Ikhwaya.

Ukwamukelwa.

Izinhloko Eziyiziphathimandla ezithintekayo zethula abafundi kuSekela-Shansela  
weNyuvesi ukuze bathole iziqu zabo: idigri/idiploma/isitifiketi.

Kukulwa iHubo Lesizwe.

# Gaudeamus Igitur

Gaudeamus igitur,  
Juvenes dum sumus;  
Post iucundum iuventutem,  
Post molestam senectutem  
Nos habebit humus.

Vivat academia,  
Vivant professores,  
Vivat membrum quodlibet,  
Vivat membra quaelibet;  
Semper sint in flore!

## English

Let us rejoice, therefore,  
While we are young.  
After a pleasant youth  
After a troubling old age  
The earth will have us.

Long live the academy!  
Long live the professors!  
Long live each student;  
Long live the whole fraternity;  
For ever may they flourish!

## Sesotho sa Leboa

Ka gona, a re thabeng,  
Re sa le ba bafsa.  
Ka morago ga bofsa bjo bo bose  
Ka morago ga go tšofala mo go nago le  
mathata  
Lefase le tla ba le rena.

Phela thuto phela!  
Phelang diprofesa phelang!  
Phelang baithuti phelang;  
Phela kagišano ka botlalo phela;  
O ka re ba ka phela gabotse goyagoile!

## Afrikaans

Laat ons dan vrolik wees,  
Terwyl ons jonk is;  
Na 'n aangename jeug.  
Na 'n onaangename oudag,  
Sal die aarde ons hou.

Lank lewe die universiteit,  
Lank lewe die professore,  
Lank lewe elke student,  
Lank lewe al die studente,  
Mag hulle vir ewig hul jeug behou!

## Zulu

Ngakho, masithokoze  
Sisebasha nje.  
Emva kobumnandi bobusha  
Emva kwezinkinga zobudala  
Umhlaba uzosithatha.

Phambili ngemfundo!  
Phambili boSolwazi!  
Phambili nakuwe mfundi;  
Phambili ngenhlangano yonke;  
Maziqhubeke ngonaphakade!

# QUALIFICATIONS

## 1. National Diploma (NDip)

**Chauke**, Nyiko Gift (Biotechnology)  
**Chavalala**, Hlulani Anastatia (Biotechnology)  
**Dubazana**, Buyile (Analytical Chemistry)  
**Khuzwayo**, Sipiwe (Analytical Chemistry)  
**Leitlhonyane**, Oratile Jacqueline (Analytical Chemistry)  
**Mamphwe**, Judith Shudulithihi (Biotechnology)  
**Mbamba**, Thulane Vincent (Biotechnology)  
**Mpemvu**, Philile Rachel (Analytical Chemistry)  
**Msiza**, Mcdonald Tumelo (Biotechnology)  
**Myeza**, Lindani (Analytical Chemistry)  
**Ndaba**, Nokuthula (Analytical Chemistry)  
**Netshivhuyu**, Mufulufhedzi (Analytical Chemistry)  
**Ngakanyane**, Loga Saini (Biotechnology)  
**Patji**, Tumiso Melvin (Analytical Chemistry)  
**Qhola**, Nyamezela (Analytical Chemistry)  
**Setshedi**, Mahlatse Makgorane (Analytical Chemistry)  
**Shange**, Petronella Nelisiwe (Biotechnology)  
**Simelane**, Bongani Lancelot (Analytical Chemistry)  
**Xulu**, Mbali Portia (Food Technology)  
**Zulu**, Thule Sister (Biotechnology)

## 2. Bachelor of Technology (B Tech)

**Rakgoho**, Mmakoma Shilas (Biotechnology)

## 3. Bachelor of Science (BSc)

**Bazolana**, Mandangi Gloseije (Computer Science and Informatics)  
**Belovay**, Kirsten Elizabeth (Computer Science and Informatics)  
**Bikani**, Lulama Nonkululeko (Information Technology)  
**Dhlamini**, Lerato Winnie (Biochemistry and Botany)  
**Goba**, Lihle Ayanda (Human Physiology and Psychology)  
**Khamoji**, Alexandra Lydia (Mathematics and Economics with financial orientation)  
**Kolela**, Franck Kabamba (Environmental Management and Geology)  
**Letsoalo**, Moshe Elias Raymond (Mathematics and Economics with financial orientation)  
**Macwele**, Zinhle Bongekile (Mathematics and Computer Science)



**Malange**, Aluwani Eulanda (Computer Science and Informatics)  
**Malombo**, Tumiso Aubrey (Computer Science and Informatics)  
**Mambeda**, Mukonazwothe (Biochemistry and Chemistry)  
**Mashele**, Glen Sakhile (Computer Science and Informatics)  
**Mathevula**, Matimba Richard (Computer Science and Informatics)  
**Matshebele**, Sharon (Biochemistry and Chemistry)  
**Mbanjwa**, Mbongiseni Protas (Computer Science and Informatics)  
**Molaolwe**, Philadelphia Malebogo (Geography and Environmental Management)  
**Naidoo**, Lereesa (Computer Science and Informatics)  
**Ngwenyama**, Hlulani Clyde (Computer Science and Informatics)  
**Nhlapo**, Thando Love Collin (Applied Mathematics and Computer Science)  
**Nkonyana**, Treasure Surprise (Computer Science and Informatics)  
**Qwabe**, Timothy Mvula Sibusizwe (Computer Science and Informatics)  
**Roos**, Jurgen Thomas (Information Technology)  
**Shayi**, Boikanyo (Human Physiology and Psychology)  
**Taptue Taptue**, Cesar Landry (Computer Science and Informatics)  
**Visser**, Simon Eric (Information Technology)

#### **4. Bachelor of Commerce Honours (BCom Hons)**

**Combrink**, Nicholas Sean (Informatics)  
**Kgodane**, Kabelo Margery (Informatics)  
**Mphahlele**, Ramatsimela Precious (Informatics)

#### **5. Bachelor of Science Honours (BSc Hons)**

**Brink**, Raugme (Chemistry)  
**De Sousa**, Ruan Felix (Informatics)  
**De Villiers**, Jacques James (Information Technology)  
**Duba**, Lwandokazi (Computer Science)  
**Fick**, Craig Frederick William (Mathematical Statistics)  
**Kapfunde**, Tsitsi Adelaide (Chemistry)  
**Lubisi**, Mxolisi Johnson (Applied Mathematics)  
**Mabasa**, Ntwanano Trevor (Computer Science)  
**Mabasa**, Tommy Fredrick (Chemistry)  
**Magampa**, Daphney Puseletso (Geography)  
**Matiza**, Samuel (Computer Science)  
**Matolo**, Matshidiso (Computer Science)  
**Modise**, Itumeleng Edison (Computer Science)  
**Moshokoa**, Moloko Fridah (Chemistry)  
**Mosidi**, Kopano (Computer Science)  
**Nako**, Bellinda Charmaine (Zoology)  
**Ndou**, Clement (Information Technology)  
**Ndou**, Julia Fallon (Zoology)  
**Olivier**, Stefan (Information Technology) **(with distinction)**

**Rabolele**, Kearabetswe Letlotlo Leah (Informatics)

**Ramonisi**, Shumani Yolanda (Zoology)

**Sambo**, Nsovo Jeremiah (Computer Science)

**Shabangu**, Khanyisile (Botany)

**Vienings**, Sean (Computer Science)

## 6. Master of Technology (M Tech)

**Gbashi**, Sefater (Food Technology) **(with distinction)**

**Dissertation:** Pressurized Hot Water Extraction (PHWE) and Chemometric Fingerprinting of Phytochemicals from *Bidens pilosa* as Analyzed on UPLC Tandem Mass Spectrometry.

**Supervisor:** Dr PB Njobeh

**Co-supervisor:** Dr NE Madala

**Nyaba**, Luthando (Chemistry) **(with distinction)**

**Dissertation:** Speciation studies of trace metals in environmental samples, using spectrometric techniques.

**Supervisor:** Dr PN Nomngongo

**Co-supervisor:** Prof JC Ngila

**Temba**, Makumba Chewe (Food Technology)

**Dissertation:** Quality Evaluation of porridges prepared from maize-groundnut composite flours.

**Supervisor:** Dr E Kayitesi

**Co-supervisor:** Dr PB Njobeh

## 7. Master of Philosophy (MPhil)

**Msebi**, Lumkile (Energy Studies) **(with distinction)**

**Dissertation:** Search for intermediate states in rare earth nucleus  $^{150}\text{Sm}$ .

**Supervisor:** Dr PL Masiteng

**Co-supervisor:** Dr SB Bvumbi

**Co-supervisor:** Dr P Jones (iThemba Labs)

## 8. Master of Science (MSc)

**Boon**, Marinus Axel (Aquatic Health)

**Minor Dissertation:** Unmanned Aerial Vehicle (UAV) photogrammetry as a tool in aquatic ecosystem mapping, assessment and planning.

**Supervisor:** Dr R Greenfield

**Co-supervisor:** Dr SG Tesfamichael

**Bower, Hendri (Mathematics) (with distinction)**

**Dissertation:** An analytical approach to the spectral characterization of the radical.

**Supervisor:** Prof H Raubenheimer

**Jansen van Rensburg, Gregg Roy (Aquatic Health) (with distinction)**

**Dissertation:** Biomarker responses in three aquatic crustacean species from the lower Phongolo Floodplain, KwaZulu-Natal.

**Supervisor:** Prof JH Janse van Vuren

**Jeffery, Tamsyn Jacki (Biochemistry)**

**Dissertation:** Vitamin D status, genetic and epigenetic variation in the vitamin D receptor gene (VDR): Potential impact on differential cancer incidence in the South African population.

**Supervisor:** Prof L Bornman

**Co-supervisor:** Dr G Koorsen

**Kandanyo, Sania (Nanoscience) (with distinction)**

**Minor Dissertation:** Characterization, *In Vitro* cytotoxicity studies and photoactive effect of gold nanorods on colorectal cancer cells.

**Supervisor:** Prof AK Mishra

**Co-supervisor:** Prof H Abrahamse (Faculty of Health Sciences)

**Kgatlé, Masaku Lovedonia (Chemistry)**

**Dissertation:** Modification of polyethersulfone by grafting acrylic acid based monomers for improved hydrophilicity and pH-responsive properties of membranes.

**Supervisor:** Dr RM Moutloali

**Co-supervisor:** Dr K Sikhwivhilu (MINTEK)

**Khoza, Bradley Sandile (Biochemistry)**

**Dissertation:** Optimization of pressurized hot water extraction (PHWE) of pharmacologically relevant metabolites from green leafy plants with the aid of UPLC-MS and multivariate data models.

**Supervisor:** Dr NE Madala

**Co-supervisor:** Prof IA Dubery

**Co-supervisor:** Prof PA Steenkamp (CSIR)

**Co-supervisor:** Prof L Chimuka (University of the Witwatersrand)

**Manzini, Lungile Glodine (Environmental Management)**

**Minor Dissertation:** Greenhouse gas emissions assessment for electricity generation from coal: an Eskom power station.

**Supervisor:** Mrs T Schoeman

**Co-supervisor:** Mrs K Chiloane (Eskom)

**Makola, Mpho Mankone (Biochemistry) (with distinction)**

**Dissertation:** Qualitative Structure-Activity Relationship (QSAR) studies of 3,5-dicaffeoylquinic acid geometrical isomers with the aid of Density Functional Theory (DFT), Liquid Chromatography Mass spectrometry (LC-MS) and HIV-1 integrase docking studies

**Supervisor:** Dr NE Madala

**Co-supervisor:** Prof IA Dubery

**Co-supervisor:** Prof PA Steenkamp

**Co-supervisor:** Dr M Kabanda (North-West University)

**Matong, Joseph Mojalefa (Chemistry)**

**Dissertation:** Strategies of sample preparation for selected trace metal speciation and determination of pesticides in environmental samples.

**Supervisor:** Dr PN Nomngongo

**Co-supervisor:** Prof JC Ngila

**Mofilikoane, Lerato Beatrice (Nanoscience) (with distinction)**

**Minor Dissertation:** Enhancing the activity of antimicrobial agents against opportunistic and mycotoxigenic fungi using copper nanoparticles.

**Supervisor:** Prof AK Mishra

**Co-supervisor:** Dr PB Njobeh

**Moitsi, Matome Ernest (Geology)**

**Dissertation:** A geometallurgical study of the mineralized footwall to the Brakspruit Facies of Merensky Reef at the Lonmin Karee Pt Mine, Bushveld Complex, South Africa.

**Supervisor:** Prof KS Viljoen

**Co-supervisor:** Mr MW Knoper

**Monama, Tshegofatso Elia (Geography)**

**Dissertation:** An Evaluation of Urban Heat Island in Tshwane Metropolitan Area using Remote Sensing Techniques.

**Supervisor:** Prof F Ahmed

**Motloba, Gloria Boikanyo (Geology)**

**Dissertation:** A Geometallurgical Assessment of the P2 and P1 units of the Platreef at Lonmin's Akanani Project, Northern Limb, Bushveld Complex.

**Supervisor:** Prof KS Viljoen

**Co-supervisor:** Dr AJB Smith

**Ncube, Efficient Nsikayezwe (Biochemistry) (with distinction)**

**Dissertation:** Manipulation of secondary metabolite synthesis in *Centella asiatica* cells: a metabolomics study.

**Supervisor:** Prof IA Dubery

**Co-supervisor:** Dr NE Madala

**Co-supervisor:** Prof PA Steenkamp

**Nemakhavhani, Thendo Emmanuel (Physics)**

**Dissertation:** Using the Ultra-relativistic Quantum Molecular Dynamics (UrQMD) model to extract the thermal conductivity transport coefficient of hadron gas.

**Supervisor:** Prof A Muronga

**Peck, Mogamat Adli (Chemistry)**

**Dissertation:** Mössbauer spectroscopy study of selected late transition metal ferrocenyl-pyrazolyl complexes.

**Supervisor:** Prof J Darkwa

**Co-supervisor:** Prof G Hearne

**Rossouw, Leandri Tanya (Biochemistry) (with distinction)**

**Dissertation:** Metabolite profiling of defence-related secondary metabolites in *Solanum lycopersicum*, in response to whitefly mediated begomovirus infection.

**Supervisor:** Dr LL Esterhuizen

**Co-supervisor:** Prof IA Dubery

**Co-supervisor:** Dr NE Madala

**Saasa, Raseputuka Valentine (Biochemistry) (with distinction)**

**Dissertation:** Non-invasive diagnosis of diabetes mellitus using a nanostructured gas sensor.

**Supervisor:** Prof E Mukwevho

**Co-supervisor:** Dr BM Mwakikunga (CSIR)

**Co-supervisor:** Dr M Fernandes-Whaley (NMISA)

**Tafirei, Respinah (Environmental Management) (with distinction)**

**Minor Dissertation:** An integrative approach towards setting conservation priority for cycad species at a global scale.

**Supervisor:** Dr K Yessoufou

**Co-supervisor:** Dr IT Rampedi

**Vafeas, Nicholas Andrew (Geology) (with distinction)**

**Dissertation:** Petrography and Geochemistry of the Hotazel formation on Mukulu 265, Kalahari Manganese field, Northern Cape Province.

**Supervisor:** Prof NJ Beukes

**Co-supervisor:** Dr B Smith

**Co-supervisor:** Mrs L Blignaut

## 9. Philosophiae Doctor (PhD)

**Asabere, Bernard Duah (Physics)**

**Thesis:** Dust in nearby merger-remnant radio galaxies.

**Supervisor:** Prof H Winkler

**Co-supervisor:** Prof C Horellou (Chalmers University of Technology, Sweden)

**Co-supervisor:** Prof T Jarret (University of Cape Town)

**Dube, Shopedzai Muchatenda** (Informatics)

**Thesis:** A conceptual framework to enhance performance in virtual project teams in information technology of South Africa.

**Supervisor:** Prof C Marnewick (Faculty of Management)

**Gilbert, Beric Michael** (Zoology)

**Thesis:** Metal accumulation in *Paradiplozon ichthyoxanthon* Avenant-Oldewage, 2013 infecting *Labeobarbus aeneus* (Burchell, 1822); ecological and species level perspectives.

**Supervisor:** Prof A Avenant-Oldewage

**Kibechu, Rose Waithiegeni** (Chemistry)

**Thesis:** Graphene based molecularly imprinted polymer composites and composite imprinted Ultrafiltration membrane for water treatment.

**Supervisor:** Prof TAM Msagati

**Co-supervisor:** Prof BB Mamba

**Co-supervisor:** Prof S Sampath (Indian Institute of Science)

**Meenakshi** (Chemistry)

**Thesis:** Application of “noble metal” in the electrocatalytic detection of monoamine groups containing neurotransmitters.

**Supervisor:** Prof K Mallick

**Mketo, Nomvano** (Chemistry)

**Thesis:** Development of microwave based sample preparation methods for extraction of multi-elements for coal clean-up and spectrometric determination.

**Supervisor:** Prof JC Ngila

**Mkhize, Dennis Sanele** (Chemistry)

**Thesis:** The development and application of imprinted membrane-passive samplers (IMPS) for the monitoring of polychlorinated biphenyls (PCBs) in aquatic systems of South Africa.

**Supervisor:** Prof TAM Msagati

**Co-supervisor:** Prof BB Mamba

**Co-supervisor:** Dr LP Quinn (NMISA)

**Muchono, Blessed** (Physics)

**Thesis:** Spin-density-wave effects and quantum critical behaviour of the  $(Cr_{98.4}Al_{1.6})_{100-x}Mo_x$ ,  $(Cr_{100-y}Al_y)_{95}Mo_5$  and  $(Cr_{100-z}Al_z)_{99}V_1$  alloy systems.

**Supervisor:** Prof ARE Prinsloo

**Co-supervisor:** Dr CJ Sheppard

**Ngie, Adeline** (Environmental Management)

**Thesis:** An investigation into the potential application of multi- and hyperspectral remote sensing for the spectral characterization of maize cultivars, quantification of some stress factors, and yield prediction in the Free State province of South Africa.

**Supervisor:** Prof F Ahmed

**Nyembe, Dumsile Winile (Chemistry)**

**Thesis:** Toxicity assessment of multiwalled carbon nanotubes and fullerenes to *Pseudokirchneriella subcapitata*, *Daphnia magna* and *Poecilia reticulata* in simulated fresh water systems.

**Supervisor:** Prof BB Mamba

**Co-supervisor:** Prof V Wepener

**Co-supervisor:** Prof N Musee (University of Pretoria)

**Sibanda, Wisdom Nkosilathi (Physics)**

**Thesis:** Pressure tuning the magnetic-electronic behavior of Fe-based charge ordered and multiferroic compounds.

**Supervisor:** Prof GR Hearne

**Co-supervisor:** Dr E Carleschi

**Swartz, André Michael (Mathematics)**

**Thesis:** Regularities and the index for Fredholm Elements in a Banach algebra via a trace.

**Supervisor:** Prof R Raubenheimer



**Asabere, Bernard Duah (PhD)**

Bernard Duah Asabere was born in Kumasi, Ghana in 1972. He completed a BSc (Hons) in Physics at Kwame Nkrumah University of Science and Technology in Kumasi in 2000. In 2009 he went to Sweden, obtaining his MSc degree in Engineering at the Chalmers University of Technology in Gothenburg. He was awarded a Square Kilometre Array (SKA) bursary to enrol for his PhD degree at the University of Johannesburg. He is the first Ghanaian to graduate in the SKA postgraduate bursary programme. Currently, Bernard is a Research Scientist at the Ghana Space Science and Technology Institute, and a trainee Lead Scientist on the African VLBI Network Ghana team.

In his thesis the candidate has presented the analysis and deconvolution of infrared and microwave images of a set of large elliptical galaxies that contain an unusual amount of dust and concurrent star formation. In addition, he secured sub-millimeter observations for part of his sample using the APEX telescope in Chile. His extensive computational analysis of the data resulted in the spatial disentanglement of the multiple galactic components and subsequent determination of some of the stellar and dust properties in the sample studied. The work also led to new insights into the nature of the objects in the sample. In this study the candidate has made some bold suggestions that may in future lead to a radical new understanding of radio source and galaxy evolution processes, which could be tested with planned new generation astronomical instruments such as MeerKAT, ALMA and eventually the SKA.

**Supervisor:** Prof H Winkler

**Co-supervisors:** Prof C Horellou (Chalmers University of Technology, Sweden)

**Co-supervisors:** Prof TH Jarrett (University of Cape Town)





**Dube, Shopedzai Muchatenda (PhD)**

Shopedzai Muchatenda Dube graduated *cum laude* with a BSc in Computer Information Systems from Andrews University, Michigan, USA in 1993. She obtained her MSc in Computer Science (*cum laude*) from the National University of Science and Technology, Zimbabwe in 1999. After completing an MSc degree, she worked for Bond University, (RSA) as an Information Technology lecturer and later joined Masana Technologies as a data analyst. She enrolled for PhD degree in 2010 at the University of Johannesburg. She currently lectures at the University of Johannesburg in the department of Applied Information Systems.

This study investigated and examined various factors which were applied to develop a conceptual framework to enhance the performance of virtual Information Technology project teams within South Africa. The key findings of this research established that communication, good leadership, trust, social interaction, team cooperation and commitment are factors that enhance the performance of virtual IT project teams. The study further revealed that there was a strong correlation between these factors and that all these factors are essential for the performance of virtual IT project teams. IT project managers can use this framework to manage virtual IT project teams and improve performance, irrespective of the physical location of team members. The candidate has published a peer-reviewed journal article and presented some aspects of this work at an international conference.

**Supervisor:** Prof C Marnewick (Faculty of Management)



**Gilbert, Beric Michael (PhD)**

Beric Michael Gilbert was born in Johannesburg in 1987. He matriculated in 2006 from Randpark High School in Randpark Ridge, Johannesburg. He graduated with a BSc in Biochemistry and Zoology in 2009, completed a BSc Hons in Zoology in 2010, and an MSc degree in Zoology (*cum laude*) in 2013. All of his degrees were obtained from the University of Johannesburg and he has received awards for presentations within the Department of Zoology and was the recipient of the Schoonbee Medal in the Department of Zoology for his Master's dissertation.

The candidate studied the effects of metal exposure on the biology of a monogenean parasite, *Paradiplozoon ichthyoxanthon*, infecting yellowfishes in the Vaal River. An extensive review of pollution effects on parasite infracommunities and physiology was presented. Poor water quality due to elevated metal levels resulted in the localised extinction of paradiplozoons in the Vaal River. Microhabitat, specificity of the parasite, wasn't related to water quality and together, such findings deepen the value of research on this topic. Analysis of metal sequestration and reactive oxygen intermediate production in paradiplozoons was done and represents a first for monogeneans globally. Eggs and larvae of the parasite exposed to aluminium under laboratory conditions indicated egg permeability changed with larval development and negatively affected larval survival, leading to the formulation of convincing conclusions about metal sensitivity of larval diplozoids. Findings of his research were presented at national and international symposia and three articles published in international journals.

**Supervisor:** Prof A Avenant-Oldewage



## **Kibechu, Rose Waithiegeni (PhD)**

Rose Waithiegeni Kibechu completed her Bachelor of Science degree in Analytical Chemistry in 2007 at the Jomo Kenyatta University of Agriculture and Technology (JKUAT) Nairobi, Kenya. She then joined the University of Botswana, in Gaborone under the German Academic Exchange programme for her MSc degree in Chemistry which she completed in 2011 before enrolling for a PhD degree in Chemistry at the University of Johannesburg.

The candidate's thesis is based on the preparation of graphene based molecularly imprinted nanocomposites and composite imprinted membranes, and their application in the treatment of water containing organic contaminants. The motivation of her work emanates from the problem of membrane fouling and the limited ability of the established ultrafiltration/nanofiltration membranes to remove all the important contaminants from water. The overarching aspect of the work investigated the potential of graphene oxide (GO) and reduced graphene oxide (rGO) with respect to improving composite materials functions. Integration of molecularly imprinted polymers (MIPs) for substance specific recognition was explored and employed in membrane filtration, adsorptive separation and in the chemical sensing of pollutants.

From the research conducted, one paper has been published in an internationally peer-reviewed journal and three articles are currently under review for possible publication. The results have also been presented in four international and local conferences.

**Supervisor:** Prof TAM Msagati

**Co-Supervisor:** Prof BB Mamba

**Co-Supervisor:** Prof S Sampath (Indian institute of Science, Bangalore, India)



## **Meenakshi (PhD)**

Meenakshi completed her secondary education at BDK Intermediate College, India in 2002. She then pursued her undergraduate studies and received her Bachelor of Science degree in 2005. She obtained her Master of Science degree in Biochemistry from Chaudhary Charan Singh University, Meerut, India in 2007. Before enrolling for a PhD, she was working as a senior lecturer at Kalka Dental College, under C.C.S. University, India. She subsequently enrolled for a PhD degree in the 2013 at the Department of Chemistry, University of Johannesburg, and was awarded the NRF Innovation Doctoral Scholarship in 2014.

Meenakshi's research focused on the application of 'noble metals' for electrocatalytic detection of mono-amine group containing neurotransmitters. This work contributes to the development of metal nanoparticles-conductive polymer based electrochemical biosensors using the '*in situ* polymerization and composite formation' technique. The synthesized composite material has been used as an electro-catalyst for the detection of neurotransmitters such as serotonin, cysteine, glutathione, tryptophan etc. Electrochemical biosensors have provided a new route to biomedical diagnosis and testing. Research to constantly improve electrochemical biosensor performance, and to develop a new protocol in biosensor design, is ongoing.

The candidate has published nine articles as a first author and seven articles as co-author in international peer-reviewed journals and presented at four international conferences.

**Supervisor:** Prof K Mallick



## **Mketo, Nomvano (PhD)**

Nomvano Mketo matriculated from Uxolo High School in Cape Town. She obtained a BSc degree in 2007 and BSc Honours degree in 2008 both *cum laude* from the University of the Western Cape and received a Dean's merit award for her accomplishments. She was awarded a TATA merit and SASOL bursary to pursue an MSc degree in Chemistry which she obtained from Stellenbosch University in 2010. In 2012 she enrolled for a PhD degree in Chemistry at the University of Johannesburg and was awarded an NRF scholarship. She received the L'Oréal-UNESCO Award for Women in Science, Sub-Sahara Africa in 2015. She is currently employed as an instrument scientist in the Spectrum, the Faculty of Science managed analytical instrument facility.

The candidate's thesis focused on the development of sample preparation methods using microwave for quantitative extraction of trace-metals and sulphur, in coal samples. Her PhD project aimed to develop innovative analytical methods to minimize emission of toxic gases from sulphur, and discharge of metal oxide wastes in fly ash, that result from coal burning. The methodology adopted involved analysis of samples using both inductively coupled plasma optical emission / mass spectrometer and ion chromatography. She employed green solvents (dilute acids, alkaline solutions and hydrogen peroxide) as extracting reagents as well as for coal demineralization/desulphurization.

Her PhD project has contributed towards sustainable environmental management by using green technology to eliminate noxious emissions during coal burning. She has produced 10 manuscripts with 5 already published, 2 under review and 3 in preparation. In addition, her research work has been presented in 3 international conferences.

**Supervisor:** Prof JC Ngila



**Mkhize, Dennis Sanele (PhD)**

Dennis Sanele Mkhize completed his Bachelor of Science degree in Pure and Applied Chemistry in 2008 at the University of KwaZulu-Natal. He completed his Honours degree in Chemistry in 2009 and a Master's degree in 2011 with special focus on the synthesis of carbon nanomaterials and organometallic Chemistry both at the University of KwaZulu-Natal. In 2012 he enrolled for a PhD in Chemistry at the University of Johannesburg.

The candidate's thesis outlines the fabrication and optimisation of a passive sampling device based on molecularly imprinted polymers, for the sampling of polychlorinated biphenyls (PCBs) in aquatic systems. The main motivation behind this project was the challenge in the detection of the low concentrations of PCBs in aquatic environments. The project was thus aimed at providing a sampler with enhanced PCB selectivity, whilst simplifying the overall analysis. The effects of environmental conditions on the sampling of PCBs were investigated and corrected using performance reference compounds under controlled conditions. The newly-developed sampler compared favourably to some well-established sampling techniques. Furthermore, the sampler enhanced the detection of highly chlorinated PCBs, which are usually more difficult to detect. The results from this work has been presented in several international and local conferences and has also been submitted to several internationally peer-reviewed journals. Moreover, the possibility of obtaining a patent is currently being investigated.

**Supervisor:** Prof TAM Msagati

**Co-supervisor:** Dr LP Quinn (National Metrology Institute of South Africa, Pretoria)

**Co-supervisor:** Prof BB Mamba



## **Muchono, Blessed (PhD)**

Blessed Muchono was born in Zimbabwe in 1974 as the second eldest in a family of eight children. He is married to Jane and the couple has three children. Blessed completed his Ordinary Levels at Chibuwe Secondary School and finally obtained his Advanced Levels at Mt Selinda High School in November 1993. He obtained his first degree at the National University of Science and Technology, Zimbabwe in 1998 followed by a Masters' degree at the University of Zimbabwe in 2002. At present he is a lecturer in the Applied Physics Department at the National University of Science and Technology in Zimbabwe.

Although considered a simple metal Chromium (Cr) and its alloys have fascinated researchers during the past few decades, leading to many technological applications in the medical and data storage fields. This thesis was in pursuit of new Cr based alloys and to expand our understanding of the unique physical properties observed in these materials. In his research the candidate developed new insights into the spin-density-wave effects and quantum critical behaviour of the  $(\text{Cr}_{98.4}\text{Al}_{1.6})_{100-x}\text{Mo}_x$ ,  $(\text{Cr}_{100-y}\text{Al}_y)_{95}\text{Mo}_5$  and  $(\text{Cr}_{100-z}\text{Al}_z)_{99}\text{V}_1$  alloy systems. The addition of Mo and V weakens the antiferromagnetism in the Cr-Al alloy system and suppresses the triple point concentration to below 2 K, a temperature where critical effects dominate thermal fluctuations. Through an experimentally challenging project these studies produced novel results regarding the behaviour of the physical properties close to the triple point concentration of the  $\text{Cr}_{100-y}\text{Al}_y$  alloy system. The candidate's research work already resulted in five national and two international publications.

**Supervisor:** Prof ARE Prinsloo

**Co-supervisor:** Dr CJ Sheppard



## **Ngie, Adeline (PhD)**

Adeline Ngie completed her secondary education in Cameroon. In 2007 she graduated with a BSc in Environmental Science as major and Botany as minor at the Anglo-Saxon University of Buea in Cameroon. She obtained her Master's degree in Geography in 2011 at the University of Johannesburg and enrolled for a PhD degree in 2012. For her PhD studies she was awarded a Commonwealth Doctoral Scholarship. She is currently employed as a temporary lecturer in Geoinformatics at the University of Johannesburg.

The candidate's thesis seeks to assess remote sensing potential in maize production through both multispectral and hyperspectral data. *In-situ* spectroscopy was used to collect spectra for different maize cultivars, nitrogen levels, and water levels from the various experimental plots. Canopy-level spectra were collected through spaceborne sensors over nitrogen treatments and grain yield prediction fields. The high dimensionality and collinearity problem of hyperspectral data was managed through Random Forest incorporated with the conditional forest and PLS to enable the selection of important wavebands, and used to develop vegetation spectral indices for both regression and classification analysis.

Ms Ngie determined the important wavebands for discriminating maize cultivars, and other determinant stress factors (nitrogen, water); and indices for predicting nitrogen concentrations and grain yields in maize which will assist in the optimal production of maize. The candidate has published one peer-reviewed journal article with three more under preparation, and presented at local and international conferences.

**Supervisor:** Prof F Ahmed





## **Nyembe, Dumsile Winile (PhD)**

Dumsile Winile Nyembe obtained her International Baccalaureate from Waterford KaMhlaba United World College in Swaziland. She went on to do her BSc in Chemistry and Biological Sciences at the University of Swaziland. She received the NRF bursary to pursue her MSc in Chemistry at the University of Johannesburg which she obtained in 2009, graduating *cum laude*. She also received the NRF Innovation award in 2010 to pursue a PhD in Chemistry.

Nanotechnology is a rapidly expanding area and nanomaterials have numerous applications including water treatment. The overarching aim of Nyembe's thesis was to address the existing gap in knowledge and further bring understanding of fate and behaviour of carbon-based nanomaterials (CBNs) earmarked for water purification. In her thesis Ms Nyembe studied aspects of multi-walled carbon nanotubes (MWCNTs) and fullerenes (C<sub>60</sub>) toxicity to algae (*Pseudokirchneriella subcapitata*), daphnia (*Daphnia magna*) and fish (*Poecilia reticulata*) in fresh water systems. Factors that impact on CBN toxicity lay in their physicochemical properties, water chemistry and the physiology of the test organism. The organism's ecological niche and its method of acquiring nutrition determines its probability of encountering and interacting with CBNs i.e. aggregating with the CBN (algae cells) or ingesting them (daphnia and fish). The candidate's work has been published in peer-reviewed journals as well as presented at local and international conferences.

**Supervisor:** Prof BB Mamba

**Co-supervisor:** Prof V Wepener (North-West University)

**Co-supervisor:** Prof N Musee (University of Pretoria)



**Sibanda, Wisdom Nkosilathi (PhD)**

Wisdom Nkosilathi Sibanda is a Zimbabwean citizen who completed his pre-tertiary education in Zimbabwe. From August 2001 to October 2005 he attended the National University of Science and Technology in Bulawayo. He qualified for a BSc Honours degree in Applied Physics. From February 2008 to February 2010 he conducted research at the University of the Witwatersrand for an MSc in Physics. In 2011 he commenced PhD research in Physics at the University of Johannesburg.

The thesis research focused on the pressure response of charge ordered (CO) compounds, in particular Fe-based systems  $\text{Fe}_2\text{OBO}_3$  (FBO) and  $\text{LuFe}_2\text{O}_4$  (LFO). These are mixed-valence compounds in which separate  $\text{Fe}^{2+}$  and  $\text{Fe}^{3+}$  valences occur as a superstructure (site-centered CO). These compounds have potential strong magneto-electric coupling effects and exhibit so-called Wigner (electronic) crystallization (FBO). The research entailed the first magnetic-electronic study of the pressure evolution of site-centered CO in both FBO and LFO up to 30 GPa (300 kbar). This involved an in-house  $^{57}\text{Fe}$  Mössbauer spectroscopic probe complemented by synchrotron X-ray diffraction structural investigations, both involving diamond-anvil pressure cell methodology. New electronic phases were discovered at high pressure in both compounds, where Fe is in an intermediate valence state from dynamical electron hopping processes. This results in the formation of electronic dimers (new dimer Mott insulating phases). Three publications in Physical Review B emanated from this work.

**Supervisor:** Prof GR Hearne

**Co-supervisor:** Dr E Carleschi



**Swartz, André Michael (PhD)**

André Michael Swartz was born and raised in Port Elizabeth. He obtained a BSc, BSc Honours and MSc degree at Rhodes University. He completed his MSc degree in 2000. He spent a number of years working in the software and telecommunications industries. In 2013 he enrolled at the University of Johannesburg as a PhD student, and he started as lecturer in the Mathematics Department in January 2016.

In his thesis the candidate focused on two mutually connected topics: Fredholm theory for elements in a Banach algebra and axiomatic spectral theory. In the 1990's Grobler and Raubenheimer developed Fredholm theory relative to a trace ideal. A result that evaded the authors was the decomposition of an index zero Fredholm element as the sum of an invertible socle element. This is one of the fundamental results in the classical Fredholm theory and the candidate solved this problem in his thesis. In the second part of his thesis the candidate compares two regularities and the spectra that they generate. By introducing a topological condition between the regularities the candidate simplifies the analysis between these spectra. He proves they are radius preserving. In the final section of his thesis he indicates how to link axiomatic spectral theory and Fredholm theory relative to a trace ideal. The candidate has published one peer-reviewed journal article.

**Supervisor:** Prof H Raubenheimer



See the back cover for the words of the National Anthem.



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