

**Welcome to the
Graduation Ceremony
of the
University of Johannesburg
26 October 2018**

**Welkom by die
Gradeplegtigheid
van die
Universiteit van Johannesburg
26 Oktober 2018**

**Le a Amogelwa
Moletlong wa Dikapešo wa
Yunibesithi ya Johannesburg
26 Diphlane 2018**

**Niyamukelwa
eMcimbini wokweThweswa kweZiqu
weNyuvesi yaseJohannesburg
26 kuMfumfu 2018**

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

DEPUTY VICE-CHANCELLOR ACADEMIC

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

DEPUTY VICE-CHANCELLOR: RESEARCH AND INTERNATIONALISATION

Prof S Sinha
BEng, MEng, PhD (UP)

REGISTRAR

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

CHIEF FINANCIAL OFFICER

Ms N Mamorare
BCom (Rhodes), BCom Hons (UKZN), CA (SA)

DEPUTY VICE-CHANCELLOR: EMPLOYEES AND STUDENT AFFAIRS

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

CHIEF OPERATING OFFICER

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

GENERAL COUNSEL

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

SENIOR EXECUTIVE DIRECTOR IN THE VICE-CHANCELLOR'S OFFICE

Dr N Vukuza
BA (Fort Hare), BA Hons (Rhodes), DTE (UNISA), MA (Wits), PhD (Stellenbosch)

EXECUTIVE DEANS

COLLEGE OF BUSINESS AND ECONOMICS

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

FACULTY OF ART, DESIGN AND ARCHITECTURE

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

FACULTY OF EDUCATION

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

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

Prof DJ Mashao
BSc Eng (UCT), MSc Eng (UCT), MSc AM (Brown, USA), PhD (Brown, USA)

FACULTY OF HEALTH SCIENCES

Prof S Nalla (Acting)
BSc (Wits), BSc Hons (Wits), Certificate ELLD (UJ), PhD (Wits)

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 SCIENCE

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

MEMBERS OF COUNCIL

CHAIRPERSON

Mr MS Teke

DEPUTY CHAIRPERSON

Ms Z Matlala (Acting)

MEMBERS

Prof H Abrahamse
Mr FM Baleni
Ms S Dlamini
Ms K Gugushe
Prof D Hildebrandt
Ms X Kakana
Mr G Khosa
Ms B Madikizela
Mr M Mahlasela
Prof T Marwala
Ms BJ Memela-Khambula
Prof A Parekh
Mr C Phetla
Dr WP Rowland
Prof A Strydom
Dr M Tom

Programme

Friday, 26 October 2018 at 09:00

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

The academic procession enters the Auditorium 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 Auditorium while those present remain standing.

Lenaneo

Labohlano, 26 Diphaleane 2018 ka 09:00

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

Sehlopha sa dirutegi se tsena ka Holong ya 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 Holong ya kopano mola bao ba lego gona ba tšwela pele go ema.

Program

Vrydag, 26 Oktober 2018 om 09:00

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

Die akademiese proses kom die Ouditorium 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 Ouditorium.

Uhlelo

uLwesihlanu, 26 kuMfumfu 2018 ngele-09:00

Ukuze kuqinisekwe ukuthi konke kuhamba kahle ngesikhathi somcimbi, bonke abakhona
bacelwa ukuba baphume eHholweni kuphela lapho umcimbi usuphuthuliwe.

Udwendwe lezifundiswa lungena ehholweni bese amalungu odwendwe ahlala phansi
esiteji.

Ikwaya icula i-Gaudeamus Igitur (noma kudlalwa iCD) ngalenkathi labo abakhona
besamile.

UShansela uhlanganisa ibandla.

Ikwaya.

Ukwamukelwa.

Izinhloko Eziyiziphathimandla ezithintekayo zethula abafundi kuShansela weNyuvesi
ukuze bathole idigiri/iploma/isitifiketi.

Kuculwa 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. Bachelor of Science (BSc)

Au, Nqobile Nomadlozi Given (Physiology and Biochemistry)
Goodburn, Tyler (Computer Science and Informatics)
Grant, Donovan (Botany and Zoology)
Kaseke, Precious (Biochemistry and Chemistry)
Kubheka, Nokulunga (Computer Science and Informatics)
Kuni, Devandrin (Computer Science and Informatics)
Lechwano, Turu Elizabeth (Biochemistry and Botany)
Lekhuwane, Sharlot Nontsikelelo (Computer Science and Informatics)
Lekwadi, Thabang Seuwe (Information Technology)
Ludere, Zwiafhela Whitney (Applied Mathematics and Mathematics)
Mabood, Zainab (Computer Science and Informatics)
Madisha, Tebatso Sam (Computer Science and Informatics)
Maesela, Kamogelo (Information Technology)
Makhetha, Nthabeleng Rosemary (Information technology)
Makwakwa, Tumelo Surprise (Information Technology)
Malala, Nkosinathi Cedric (Computer Science and Informatics)
Mamaro, Batseba Seage (Applied Mathematics and Mathematics)
Maphisa, Siyamdumisa Praiswell (Information Technology)
Mathodlana, Karabo Vuyo (Computer Science and Informatics)
Mboweni, Musa Charmaine (Zoology and Physiology)
Mndawe, Thandeka Eugenia (Physiology and Biochemistry)
Mosemaka, Linda Percy (Information Technology)
Moyo, Kudzanani (Physiology and Biochemistry)
Naidoo, Aneurine (Biochemistry and Chemistry)
Ngqebe, Mlungisi Philile (Applied Mathematics and Mathematics)
Nhlangothi, Bongumusa Phumlani (Physics and Applied Mathematics)
Nyelele, Aubrey Moeketsi (Information Technology)
Phetla, Nhlanhla Carlos (Applied Mathematics and Mathematics)
Pholo, Teboho Cecil (Computer Science and Informatics)
Rampisi, Thato Mpho (Information Technology)
Ramulifho, Phuluso Govern (Information Technology)
Rennie, Christopher William (Environmental Management and Zoology)
Sebiloane, Kabelo Albina (Botany and Zoology)
Selokela, Rebone Kgothatso Hellen (Physiology and Biochemistry)
Shongwe, Mpendulo Vusa Dumezweni (Information Technology)
Zulu, Thembelihle Prisca (Geography and Environmental Management)
Zuma, Sibonelo Vumani (Computer Science and Informatics)
Zuze, Marc Lerhanzo (Computer Science and Informatics)

2. Bachelor of Science Honours (BSc Hons)

Boock, Herman Theodore (Chemistry)
Dhlamini, Cindy (Chemistry)
Fisher, Cameron (Computer Science)
Hlatshwayo, Xolani Sibusiso (Chemistry)
Masanabo, Ntombenhle Maria (Chemistry)
Motlokwa, Thanyani Mposi (Computer Science)
Motlounge, James Bongani (Geology)
Moumakoe, Mandla Caiphus (Mathematics)
Sangweni, Bandile Ndumiso (Geology)
Stewart, Ross Dylan (Botany)

3. Master of Technology (M Tech)

Diale, Mamonokane Olga (Biotechnology) **(with distinction)**

Dissertation: Isolation and identification of bioactive compounds from bacterial endophytes associated with *Combretum molle*.

Supervisor: Dr MH Serepa-Dlamini

Co-Supervisor: Dr VB Mavumengwana

Co-Supervisor: Dr E Ubomba-Jaswa (Water Research Commission)

Masinga, Thobile (Chemistry) **(with distinction)**

Dissertation: Quaternised photocatalytic adsorbent polymeric beads for selective cyanide mineralisation in metallurgical process wastewater streams.

Supervisor: Dr RM Moutloali

Mokubedi, Sharon Maphala (Biotechnology)

Dissertation: The Prevalence of Fungi and mycotoxins in Poultry Feed, South Africa.

Supervisor: Prof PB Njobeh

Co-Supervisor: Dr JZ Phoku (ARC)

Morajane, Dimakatso Maria (Chemistry) **(with distinction)**

Dissertation: Processing Strategies for Nano-level Dispersion of Clay Platelets in Polypropylene Matrices.

Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr V Ojijo (CSIR)

Co-Supervisor: Dr J Bandyopadhyay (CSIR)

Motlatle, Abesach Moshalagae (Chemistry)

Dissertation: Anticorrosive properties of nanocomposite epoxy coatings containing conducting PANI and nanostructures.

Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr J Ramontja

Co-Supervisor: Dr M Scriba (CSIR)

Olifant, Goitsione Emily (Biotechnology)

Dissertation: The fabrication of polymer nanocomposites based sensor for the detection of hydrogen sulphide, methanol and ethanol produced during beer fermentation.

Supervisor: Dr M Mamo

Co-Supervisor: Dr V Mavumengwana

4. **Master of Arts (MA)**

Mahlasi, Craig (Geography) (**with distinction**)

Dissertation: Remote sensing of water quality in inland water bodies.

Supervisor: Dr SG Tesfamichael

5. **Master of Commerce (MCom)**

Booyens, Ryno (Informatics)

Dissertation: A Best Practice Framework for Web Accessibility in South Africa.

Supervisor: Prof SH von Solms

Duvenage, Petrus Carolus (Informatics)

Dissertation: A conceptual framework for Cyber Counterintelligence.

Supervisor: Prof SH von Solms

6. **Master of Philosophy (MPhil)**

Mudau, Zwivhuya Patience (Energy Studies)

Dissertation: Characterization of Chromium and Chromium-Aluminium alloy thin films.

Supervisor: Dr CJ Sheppard

Co-Supervisor: Prof ARE Prinsloo

Co-Supervisor: Prof A Venter (NECSA)

7. Master of Science (MSc)

Abrahams, Muhammad Zaid (Informatics)

Dissertation: Compliance optimization through configuration management tools, process and delivery pipeline alignment.

Supervisor: Prof JJ Langerman

Baker, Nathan Jay (Aquatic Health) (with distinction)

Dissertation: An assessment of the aquatic macroinvertebrate diversity within the Nyl River Floodplain system, Limpopo, South Africa.

Supervisor: Dr R Greenfield

Barnardt, Herman Marius (Information Technology)

Dissertation: A framework for offloading decision making to conserve battery life on mobile devices.

Supervisor: Prof M Coetzee

Cele, Bhekisisa Headman (Aquatic Health)

Minor dissertation: Implementation of rapid assessment methods for water resource monitoring in Sabie River, Mpumalanga, South Africa.

Supervisor: Dr R Greenfield

Chaba, Madimetja James (Nanoscience)

Minor dissertation: Synthesis of metal oxides coated carbon nanofibers and their application for removal of selected antibiotics in environmental matrices.

Supervisor: Prof PN Nomngongo

Chizema, Munashe (Chemistry) (with distinction)

Dissertation: Synthesis and characterization of novel carbohydrate based sulfoximines and their biological activity evaluation as potential anti-malaria agents.

Supervisor: Prof HH Kinfe

De Kock, Marthinus Conrad (Geology)

Dissertation: Metallogenesis of the Paleoproterozoic Sishen iron ore deposit, Northern Cape Province, South Africa.

Supervisor: Dr AJB Smith

Co-Supervisor: Prof NJ Beukes

Djournessi Fobasso, Redrisse (Physics)

Dissertation: Superconductivity and Magnetic Ground States in the New Ytterbium Compounds $\text{Yb}_3\text{Pd}_4\text{Sn}_{13}$, $\text{Yb}_{13}\text{Pd}_{40}\text{Sn}_{31}$ and $\text{YbRh}_2\text{Al}_{10}$.

Supervisor: Prof AM Strydom

Egambaram, Orielia Pria (Chemistry (with distinction))

Dissertation: The development of Zinc-Titanium Layered Double Hydroxide as novel inorganic UV filters for cosmetic applications.

Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr S Pillai (CSIR)

Greenberg, Desire Ann (Geography)

Dissertation: Development, Geography and Organisation of Serviced Apartments in South Africa.

Supervisor: Prof JM Rogerson

Hamany Djande, Claude Yasmine (Biochemistry) (with distinction)

Dissertation: LC/MS based metabolomic investigations of the effect of phytohormones on cultured cells of *Moringa oleifera*.

Supervisor: Prof IA Dubery

Co-Supervisor: Dr NE Madala

Co-Supervisor: Dr L Piater

Co-Supervisor: Prof PA Steenkamp

Henman Weir, Felicity (Aquatic Health)

Minor dissertation: Audit tools to assess, quantify, monitor and report on impacts on water resources at a catchment unit level.

Supervisor: Dr A Nel

Hlongwani, Nkhensani Caroline (Geology) (with distinction)

Dissertation: Characterization of the upper manganese bed of the Hotazel Formation at KMR Mine, Kalahari Manganese Field, Northern Cape Province.

Supervisor: Dr AJB Smith

Co-Supervisor: Prof NJ Beukes

Co-Supervisor: Dr LC Blignaut

Janse van Rensburg, Alice Martha (Computer Science) (with distinction)

Dissertation: Vulnerability Testing in the Web Application Development Cycle.

Supervisor: Prof SH von Solms

Kapfunde, Tsitsi Adelaide (Chemistry) (with distinction)

Dissertation: Catalytic conversion of the bio-derived molecules furfural and levulinic acid by new pyrazoloyl R^{II} and Rh^I catalyst precursors

Supervisor: Dr BCE Makhubela

Co-Supervisor: Prof J Darkwa

Letswalo, Machaba Leanyatsa Abraham (Nanoscience)

Minor dissertation: Effect of anionic partial substitution on structural and luminescence properties of CaMoO_4 : Eu^{3+} color tunable Phosphor compounds for White-Light-Emitting Diode Applications.

Supervisor: Prof OM Ntwaeaborwa (University of the Witwatersrand)

Co-Supervisor: Dr L Reddy

Mabuza, Nombuzo (Chemistry)

Dissertation: Fractionation and speciation of manganese and zinc in rooibos tea leaves and tea infusions.

Supervisor: Prof HH Kinfe

Co-Supervisor: Dr A Ambushe

Co-Supervisor: Prof PP Coetzee

Co-Supervisor: Prof TW Godeto

Magengenene, Tseliso Mitchell (Chemistry) (with distinction)

Dissertation: Aqueous-Biphasic Hydroformylation of 1-Octene using Water-Soluble Rh(I) Complexes as Catalyst Precursors.

Supervisor: Dr BCE Makhubela

Co-Supervisor: Prof J Darkwa

Makhado, Khathutshelo Abraham (Nanoscience)

Minor dissertation: Application of Avocado Peels Adsorbent for the Removal of Selected Toxic Metals from Water.

Supervisor: Dr N Mabuba

Co-Supervisor: Dr E Makhatha (Faculty of Engineering and the Built Environment)

Maleka, Prettier Morongoa (Nanoscience)

Minor dissertation: Synthesis and characterization of cerium (Ce^{3+}) doped alkaline sodium phosphate (NaMPO_4 M= Mg/Ca/Sr/Ba) nano phosphors.

Supervisor: Prof OM Ntwaeaborwa (University of the Witwatersrand)

Co-Supervisor: Dr L Reddy

Malindisa, Ramakone Christina (Nanoscience)

Minor dissertation: Tin oxide nanomaterials: Synthesis and their potential in photocatalysis.

Supervisor: Dr L Reddy

Marakalala, Mokgethwa Bruce (Chemistry) (with distinction)

Dissertation: Iodine mediated preparation of beta-acetoxysulfides and stereoselective synthesis of (E)-1,3-diphenyl-1-butene dimers.

Supervisor: Prof HH Kinfe

Co-Supervisor: Dr EM Mmutlane

Mareya, Charity Rumbidzai (Biochemistry) (with distinction)

Dissertation: *Sorghum bicolor* defense responses to the pathogen *Burkholderia andropogonis*: An LC/ MS metabolomic analysis.

Supervisor: Prof IA Dubery

Co-Supervisor: Dr NE Madala

Co-Supervisor: Dr L Piater

Co-Supervisor: Prof PA Steenkamp

Masangane, Martha Pricilla Nomacala (Geology)

Dissertation: The timing and nature of post-depositional iron mineralization in ore from the Wolhaarkop Dome, Northern Cape, South Africa.

Supervisor: Dr AJB Smith

Co-Supervisor: Prof NJ Beukes

Matsebula, Lunga Masiza (Applied Mathematics)

Dissertation: Properties and Symmetries of NonLinear Dynamical Systems in Vector Product Form, The Curl of Vector Fields and Software Implementation.

Supervisor: Prof W-H Steeb

Matsheku, Asanda Cleopatra (Chemistry) (with distinction)

Dissertation: Synthesis, Characterization and Electrochemical Properties of new Ferrocenylimine and Adamantylimine Palladium(II) Complexes and their Application in Mizoroki-Heck and Suzuki-Miyaura Carbon-Carbon Cross-Coupling Reactions.

Supervisor: Dr BCE Makhubela

Co-Supervisor: Prof MC Maumela

Mdletshe, Lindokuhle Sakhile (Chemistry)

Dissertation: Development of Magnetic Copper-Iron Oxide Nanocatalyst for Oxidation of Pinene to Aroma Oxygenates.

Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr P Makgwane (CSIR)

Mgwenya, Tintswalo Nomsa (Nanoscience)

Minor dissertation: Polymer nanocomposites-based sensors for the detection of lung cancer volatile organic biomarkers.

Supervisor: Dr MA Mamo

Co-Supervisor: Dr J Ramontja

Mokwebo, Kefilwe Vanessa (Nanoscience) (with distinction)

Minor dissertation: Development of an electrochemical cholesterol biosensor based on poly (propylene imine) dendrimer-quantum dots nanocomposite.

Supervisor: Prof OA Arotiba

Co-Supervisor: Prof SO Oluwafemi

Moodley, Cresten (Chemistry)

Dissertation: Lanthanide-cupferron type complexes as spectral converters.

Supervisor: Prof AJ Muller

Mosikatsi, Bonolo Eugene (Nanoscience) (**with distinction**)

Minor dissertation: Thin film composite membranes consisting of hyperbranched polyethyleimine (HPEI)-cysteamine layer for heavy metal removal.

Supervisor: Dr SP Malinga

Co-Supervisor: Dr N Mabuba

Mosime, Matsie Tshegofatso (Environmental Management)

Minor dissertation: Assessing the spatio-temporal dynamics of wetlands vegetation at Klipriviersberg Nature Reserve, South Africa.

Supervisor: Dr SG Tesfamichael

Motale, Mamafa Jonas (Chemistry)

Dissertation: Development of a three layer film using EVOH and LDPE blends for packaging material applications.

Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr T Malwela (CSIR)

Motsepe, Tshedimoso (Biochemistry)

Dissertation: Determination of the location of the N-terminal domain of H1.11L in chromatin by chemical cross-linking and mass-spectrometry.

Supervisor: Dr G Koorsen

Mphuthi, Thabo Daniel (Computer Science)

Dissertation: Bolepi: A natural computing framework for forecasting project outcomes.

Supervisor: Dr DA Coulter

Naidoo, Nathaneel Dabhie (Information Technology)

Dissertation: A Meta-level Controlled Multi-agent Model.

Supervisor: Prof EM Ehlers

Ndiitwani, Tshimangadzo (Biochemistry)

Dissertation: Biochemical and structural characterisation of parental and hybrid carboxylesterases from selected *Bacillus species*.

Supervisor: Dr MG Tlou

Co-Supervisor: Dr VB Mavumengwana

Nkosi, Thabang Johannes (Nanoscience)

Minor dissertation: Energy transfer between gadolinium ion (Gd^{3+}) and praseodymium ion (Pr^{3+}) in calcium phosphate $Ca_3(PO_4)_2$ phosphor.

Supervisor: Prof OM Ntwaeaborwa (University of the Witwatersrand)

Co-Supervisor: Prof L Reddy

Nkumanda, Khanyiso (Aquatic Health)

Minor dissertation: Impact of the gold mines of the West Rand on the dolomitic aquifer in Gauteng.

Supervisor: Dr F Durand

Nkuna, Oscar (Mathematics) (with distinction)

Dissertation: On the packing chromatic number of cubic graphs.

Supervisor: Prof B Jonck (University of the Witwatersrand)

Co-Supervisor: Prof P Dankelmann

Co-Supervisor: Mr R Maartens (University of the Witwatersrand)

Ntlhoro, Boitumelo Lena (Geology)

Dissertation: The timing and nature of post-depositional iron mineralization at Kolomela Mine, Northern Cape, South Africa.

Supervisor: Prof AJB Smith

Co-Supervisor: Prof NJ Beukes

Ntuli, Noxolo Nokukhanya (Zoology)

Dissertation: An investigation of core-edge genetic diversity in South African marine mussels.

Supervisor: Prof PR Teske

Co-Supervisor: Dr K Nicastro (Universidade do Algarve, Portugal)

Co-Supervisor: Dr GI Zardi (Universidade do Algarve, Portugal)

Nyakudya, Petronella (Environmental Management)

Minor dissertation: Management of e-waste: A case study of manufacturers in Gauteng.

Supervisor: Mrs DC Schoeman

Ocansey, Edward (Chemistry) (with distinction)

Dissertation: Synthesis of *Bis*(Pyrazolyl) Palladium(II) Complexes For Suzuki-Miyaura and Mizoroki-Heck Carbon-Carbon Cross-Coupling Reactions.

Supervisor: Dr BCE Makhubela

Co-Supervisor: Prof J Darkwa

Oklu, Novisi Komla (Chemistry) (with distinction)

Dissertation: Synthesis of New Ruthenium Complexes for the Selective Hydrogenation of Levulinic Acid to γ -Valerolactone.

Supervisor: Dr BCE Makhubela

Peter, Chijioke Nduka (Chemistry) (with distinction)

Dissertation: Organic-Inorganic based nanocomposites for wastewater treatment.

Supervisor: Prof PP Govender

Co-Supervisor: Dr SK Shukla (Vinova Bhave Research Institute, India)

Phungula, Phumela Pamella (Aquatic Health)

Minor dissertation: The Use of diatoms in assessing water quality in the Nyl and Mogalakwena River systems in the Limpopo Province, South Africa.

Supervisor: Dr R Greenfield

Ramashapa, Marungwane Chieftainess (Geography)

Dissertation: Evaluating the impact of the 2014 – 2015 drought on the informal economy: A case study of Swazi-inn market and Leralla market, Tembisa.

Supervisor: Prof G Hoogendoorn

Roodt, Gerhard Theo (Chemistry)

Dissertation: Crystal Engineering of N,N'-dinitroethylene diamine to Improve Chemical Stability and Energetic Properties.

Supervisor: Dr C Arderne

Co-Supervisor: Prof DC Levendis (University of the Witwatersrand)

Sekati, Kagiso Mankala James (Chemistry)

Dissertation: Synthesis and Characterization of New Pyrazolyl and Ferrocenyl-pyrazolyl Ru(II) and Ru(0) Complexes as Catalyst Precursors for the Hydroformylation of 1-octene.

Supervisor: Dr BCE Makhubela

Co-Supervisor: Prof J Darkwa

Sihoka, Chris (Zoology) (with distinction)

Dissertation: A histological and haematological assessment of the effect of DDT in a multitoxicant exposure using *Oreochromis mossambicus* as a bioindicator.

Supervisor: Prof I Wagenaar

Sinugo, Phumudzo Steven (Environmental Management)

Minor dissertation: Stakeholders' knowledge, attitude and perceptions on environmental conservation: A case study of the Vhembe biosphere reserve.

Supervisor: Mrs E Block

Co-Supervisor: Dr IT Rampedi

Terblanche, Sullivan (Geology)

Dissertation: The provenance of the Buffels River complex: The timing of its formation and the possible source area of its diamonds.

Supervisor: Dr HS van Niekerk

Co-Supervisor: Dr C Vorster

Thwala, Mpendulo Mphumelelo (Chemistry) (with distinction)

Dissertation: Efficiency of modified tungsten trioxide nanoparticles on the photoreduction of metal ions in water.

Supervisor: Prof LN Dlamini

Co-Supervisor: Prof JC Ngila

Van der Westhuizen, Hendrik Johannes Carl (Information Technology) (with distinction)

Dissertation: A Context-Aware, Service-Sharing, Generic Smart-Computing Environment.

Supervisor: Prof EM Ehlers

Visser, Natasha (Botany) (with distinction)

Dissertation: A taxonomic study of the *Thesium goetzeanum* species complex (Santalaceae).

Supervisor: Prof B-E van Wyk

Co-Supervisor: Dr MM Le Roux (South African National Biodiversity Institute)

Vlotman, David Eswald (Chemistry) (with distinction)

Dissertation: Hyperbranched polymer membranes for the removal of organic and inorganic pollutants from water.

Supervisor: Dr SP Malinga

Co-Supervisor: Dr T Ndlovu (University of Swaziland)

Co-Supervisor: Prof JC Ngila

8. Philosophiae Doctor (PhD)

Amenuvor, Gershon (Chemistry)

Thesis: (Phosphino)Ruthenium Complexes as Pre-catalysts for the Hydrogenation of Luvelinic Acid to γ -Valerolactone.

Supervisor: Prof J Darkwa

Co-Supervisor: Dr BCE Makhubela

Botlhoko, Orebotse Joseph (Chemistry)

Thesis: Development of eco-friendly electronic packaging materials based on polylactide/poly (ϵ -caprolactone)/graphene oxide-based composites.

Supervisor: Dr J Ramontja

Co-Supervisor: Prof S Sinha Ray

Fakayode, Olayemi Jola (Chemistry)

Thesis: Synthesis and characterization of superparamagnetic iron oxide nanoparticles-gold core-shell porphyrin conjugate for photodynamic therapy.

Supervisor: Prof SO Oluwafemi

Co-Supervisor: Prof SP Songca (University of Zululand)

Kabeya Ilunga, Ali (Chemistry)

Thesis: Catalytic and Kinetic Studies of Transition Metal Nanoparticles and Reducible Mesoporous Transition Metal Oxide Materials.

Supervisor: Prof R Meijboom

Kera, Nazia Hassan (Chemistry)

Thesis: Conducting nanocomposites for the removal of heavy metals from wastewater.

Supervisor: Prof A Maity

Co-Supervisor: Prof K Pillay

Co-Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr M Bhaumik

Leudjo Taka, Anny (Chemistry)

Thesis: Phosphorylated carbon nanotube-cyclodextrin/silver-doped titania nanobiocomposites for water purification.

Supervisor: Prof XY Mbianda

Co-Supervisor: Prof K Pillay

Co-Supervisor: Prof E Fosso-Kankeu (North-West University)

Makhado, Edwin (Chemistry)

Thesis: Synthesis, characterization and applications of xanthan gum based synthetic polymers in organic and inorganic contaminations removal from aqueous solution.

Supervisor: Dr J Ramontja

Co-Supervisor: Dr S Pandey

Co-Supervisor: Prof PN Nomngongo

Mapazi, Odwa (Chemistry)

Thesis: Polydiacetylene colorimetric sensors for detection and monitoring of chemical substances and temperature in environmental matrices.

Supervisor: Prof JC Ngila

Co-Supervisor: Dr KP Matabola (MINTEK)

Mofokeng, Tladi Gideon (Chemistry)

Thesis: An Investigation into the Role of Nanoclay and its Localization on the Micro-structural Development and Properties of Polypropylene-based Immiscible Blends.

Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr V Ojijo

Msomi, Phumlani Fortune (Chemistry)

Thesis: Anion exchange nanocomposite membranes doped with different nanomaterials for direct alkaline methanol fuel cell (DAMFC) application.

Supervisor: Dr J Ramontja

Co-Supervisor: Prof PG Ndungu

Co-Supervisor: Dr PT Nonjola (CSIR)

Ndlwana, Lwazi (Chemistry)

Thesis: Multi-synthetic routes for polyethersulfone-based microfiltration membranes with enhanced properties for degradation of persistent organic pollutants in water.

Supervisor: Prof JC Ngila

Co-Supervisor: Dr K Sikhwivhilu (MINTEK)

Velempini, Tarisai Phillipa (Chemistry)

Thesis: Ion-imprinted polymers for mercury and chromium selective removal from aqueous solutions and detection using electrochemical methods.

Supervisor: Prof K Pillay

Co-Supervisor: Prof XY Mbianda

Co-Supervisor: Prof OA Arotiba



Amenuvor, Gershon (PhD)

Gershon Amenuvor was born and raised in Ghana. In 2003 he completed his secondary education at a Technical College specialising in Electrical Installation and Regulations and in 2006 obtained his West African Senior School Certificate in 2006. In 2011 he obtained a BSc Honours degree in Chemistry from Kwame Nkrumah University of Science and Technology, and served as a teaching assistant at the same institution for the 2011/2012 academic year. In 2015 Mr Amenuvor obtained his MSc degree in Chemistry from the University of Johannesburg and enrolled for a PhD degree in the same discipline.

Mr Amenuvor's work involved the preparation of a series of ruthenium(II) catalysts bearing mixed-donor P^N, P^O, N^PP^N and S^PP^S ligands for the hydrogenation of biomass-derived levulinic acid to an essential chemical (γ -valerolactone), which can further be converted to liquid fuels. By paying careful attention to ligand design, he was able to produce very active and selective catalysts. Some of the catalysts he discovered are superior to the best-known catalysts for γ -valerolactone production. Results in this thesis have been presented at several local and international conferences and received an award at the 28th International Conference on Organometallic Chemistry. His work has produced two publications in high impact international peer-reviewed journals, one of which was in ACS Sustainable Chemistry and Engineering as an invited article for the 25th anniversary of Green Chemistry. Three more manuscripts are in preparation.

Supervisor: Prof J Darkwa

Co-Supervisor: Dr BCE Makhubela



Botlhoko, Orebotse Joseph (PhD)

Orebotse Joseph Botlhoko matriculated in 2007 from Letsatsing Science High School. At the Exhibition for Young Scientists he received an award for developing and presenting the novel electric controlled curtains at Mafikeng. He obtained a BSc degree in Chemistry and Physics, followed by a BSc Honours degree in Chemistry from North-West University in 2013. In 2015 he obtained an MSc degree in Nanoscience at the University of Johannesburg, and subsequently enrolled for a PhD degree in Chemistry. He is currently a postdoctoral research fellow at the Council for Scientific and Industrial Research (CSIR).

Mr Botlhoko developed various biodegradable polymer composites from the incorporation of extremely low loading of graphite and its derivatives into the neat polylactide/poly(ϵ -caprolactone) polymer blend for application in electronic packaging devices. These interesting materials presented a novel approach to simultaneously improve the thermal conductivity and electrical resistivity, as well as the ductility of a bio-based polylactide blend composite by localizing thermally shocked graphene oxide particles in a dispersed poly(ϵ -caprolactone) phase. The candidate's results paved the way for the development of high performance, environmentally friendly composite materials for thermal management applications, and reduction of environmental pollution by plastics. The candidate has published five articles in high impact peer-reviewed journals and in 2017 results from one of his articles was chosen as the cover page of the Journal of Applied Polymer Science. This work has been presented at both local and international conferences.

Supervisor: Dr J Ramontja

Co-Supervisor: Prof S Sinha Ray



Fakayode, Olayemi Jola (PhD)

Olayemi Jola Fakayode was born in Ibadan, Nigeria in 1975. He matriculated at Lagelu Grammar School, Ibadan in 1992. He obtained a BSc Ed. degree majoring in Chemistry from the Obafemi Awolowo University, Nigeria in 1999. In 2003, he obtained an MSc degree in Analytical Chemistry from the University of Ibadan, Nigeria. He enrolled for a PhD degree at the University of Johannesburg in 2015.

The destructive effect of the interaction of light with photosensitizers (PSs) against normal cells due to the non-directional accumulation of the PS has been a major challenge in the photodynamic treatment of human cancers. In this doctoral study, a magnetic field-driven nanocomposite drug consisting of biocompatible superparamagnetic iron oxide nanoparticles (SPIONs), gold and meso-tetrakis(4-hydroxyphenyl)porphyrin was synthesized, characterized and applied for the elimination of breast cancer cells (MCF-7). The study provides a better approach for synthesizing magnetic, gold and porphyrin materials and the conjugate can function as a new promising magnetic-field targeting agent for the theranostic photodynamic eradication of cancer. The thesis resulted in five international peer-reviewed journal articles, one conference proceeding, two book chapters and presentations at two national symposia and three international conferences.

Supervisor: Prof SO Oluwafemi

Co-Supervisor: Prof SP Songca (University of Zululand)



Kabeya Ilunga, Ali (PhD)

Ali Kabeya Ilunga completed his secondary education in the Democratic Republic of Congo in 1999. In 2006, he obtained his BSc Honours degree in Chemistry at the University of Kinshasa. He obtained an MSc degree in Chemistry at the University of Johannesburg in 2015. In 2016 he enrolled for a Doctoral degree.

Mr Kabeya Ilunga synthesized a series of palladium and gold alloy nanoparticles stabilized by dendrimers and studied their catalytic and kinetic activities in a model reaction. He identified the optimum ratio of palladium to gold in the alloy nanocatalyst based on catalytic activity. The candidate also synthesized a number of mesoporous metal oxide materials. These materials showed different characteristics based on the final calcination temperature, which was shown to play a critical role on their catalytic activity. Combining the alloy nanocatalysts and mesoporous metal oxide materials, he observed synergy between the alloy and the support. These findings resulted in a unique insight into the interfacial interaction between the catalysts and substrates. This investigation is of great importance in catalyst design. Parts of the work was presented in international conferences. The candidate has published four papers in international peer-reviewed journals. Three of these papers were published in Applied Catalysis B: Environmental, with an impact factor of 11.6. Currently, one more paper is under review.

Supervisor: Prof R Meijboom



Kera, Nazia Hassan (PhD)

Nazia Hassan Kera was born in Boksburg in 1983. She matriculated at Liverpool Secondary School in 2000. She obtained a BSc degree in Chemistry and Applied Chemistry in 2005 and a BSc Honours degree in Applied Chemistry in 2006 from the University of the Witwatersrand. In 2013 she obtained an MSc degree in Chemistry from the University of Johannesburg. In 2014 she started working at the Council for Scientific and Industrial Research preparing for her doctoral studies. She enrolled for a PhD degree at the University of Johannesburg in 2015.

Mrs Kera's doctoral study focused on developing novel conducting polymer based composites for the remediation of wastewater containing toxic heavy metal pollutants. In particular, Mrs Kera investigated the modification of polypyrrole and polyaniline to obtain conducting polymer composites for the adsorption and reduction of hexavalent chromium in water. She synthesized and characterized three novel conducting polymer composites, namely, polypyrrole/2,5-diaminobenzenesulfonic acid composite, polypyrrole-polyaniline/iron oxide magnetic nanocomposite and polypyrrole-*m*-phenylenediamine polymer, and investigated hexavalent chromium removal from aqueous solutions by these composites in batch studies. Mrs Kera showed that the modification of polypyrrole with compounds containing amino functional groups resulted in composites with high adsorption capacities and selectively for hexavalent chromium. In addition, the modification of polypyrrole-polyaniline polymer with iron oxide nanoparticles enhanced its hexavalent chromium adsorption capacity and the magnetic properties were advantageous for recovering the adsorbent from treated water. Her research resulted in three scientific articles published in international peer-reviewed journals.

Supervisor: Prof A Maity

Co-Supervisor: Prof K Pillay

Co-Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr M Bhaumik



Leudjo Taka, Anny (PhD)

Anny Leudjo Taka was born in Douala, Cameroon. She matriculated from Dauphine High School in Douala in 2003. In 2009 she obtained a BSc Honours degree in Chemistry from the University of Johannesburg and in 2014 she obtained an MSc degree in Chemistry from the same institution. In March 2015, she enrolled for a PhD degree with sponsorship from the National Research Foundation.

The candidate's thesis focused on the development of novel bio-nanosponge filters able to concurrently remove all the three classes of water pollutants (inorganic, organic and pathogenic microorganism) from wastewater. It involved the synthesis of phosphorylated multiwalled carbon nanotube-cyclodextrin/silver doped titania (pMWCNT- β CD/TiO₂-Ag) using a combined process of amidation reaction, cross-linking polymerization and a sol-gel method. Various characterization techniques were used to elucidate the properties of the prepared materials and explain their interaction mechanisms with the polluting agents. The candidate has published three articles in international peer-reviewed journals with two more under review. She has presented her work at both local and international conferences.

Supervisor: Prof XY Mbianda

Co-Supervisor: Prof K Pillay

Co-Supervisor: Prof E Fosso-Kankeu (North-West University)



Makhado, Edwin (PhD)

Edwin Makhado was born on the 19th of January 1988 and matriculated at Kebalepile High School in Mafikeng in 2007. In 2011, he obtained a BSc degree at the North-West University and in 2012 he obtained a BSc Honours degree at the same institution. Subsequently he enrolled at the University of Johannesburg where he obtained an MSc degree (*cum laude*) in 2014. During this time he also worked as an intern at the Council for Scientific and Industrial Research. He enrolled for a PhD degree in Chemistry in 2015.

Mr Makhado's research focused on the preparation and application of biopolymer-based adsorbents for removal of heavy metals and organic dyes from aqueous solutions. He had used biocompatible, biodegradable, cheap, eco-friendly natural biopolymer i.e. Xanthan gum (XG) and modified it using different vinyl monomers by a microwave assisted chemical grafting and crosslinking method. Hydrogel and nanocomposite hydrogel adsorbents were prepared with incorporation of carbon nanomaterials such as functionalized Multiwall carbon nanotubes and reduced graphene oxide. These materials were highly effective in the removal of Methylene blue, Methyl Orange dyes, and inorganic (Cr^{6+}) contaminants from aqueous solutions. The method developed and used was found to be simple, cost effective, eco-friendly, and low energy consumption. The candidate's work resulted in three publications in high impact factor peer-reviewed international journals with one more manuscript and a book chapter currently under review. This work was also presented at local and international conferences.

Supervisor: Dr J Ramontja

Co-Supervisor: Dr S Pandey

Co-Supervisor: Prof PN Nomngongo



Mapazi, Odwa (PhD)

Odwa Mapazi was born in Dordrecht and matriculated from Vuselela Combined School in Queenstown. He obtained a BSc degree in Chemistry and Computer Science from the University of Fort Hare in 2010 and in 2011 he obtained an Honours degree in Chemistry from the same University. In 2014 he obtained an MSc degree in Nanoscience at the University of Johannesburg. He registered for his PhD in Chemistry that same year.

Mr Mapazi's project developed colorimetric sensors based on polydiacetylene and hyperbranched polyethylenimine polymers, for monitoring environmental systems. He investigated three aspects namely; modification of commercial polydiacetylene with urea for heat monitoring and reporting purposes; thermal and thermochromic properties of polydiacetylene; modification of polydiacetylene with hyperbranched polyethylenimine colloidal liposomes for the detection of metal ions in water; and the production of electrospun nanofiber composites for trapping metal ions. The outcome of his research was novel colorimetric sensors for detection of heat (temperature) changes in environmental systems and trapping, as well as detection of heavy metal ions in water. His study has therefore contributed new technological solutions for both the sensor science and environmental monitoring disciplines, using simplified fabrication approaches, to develop smaller, cheaper and easy-to-use analytical tools. The candidate's work has produced three journal articles; two have been published and one under review. His work has been presented at both local and international conferences.

Supervisor: Prof JC Ngila

Co-Supervisor: Dr KP Matabola (MINTEK)



Mofokeng, Tladi Gideon (PhD)

Tladi Gideon Mofokeng was born in Warden in 1988. He matriculated from Refeng Thabo Secondary School in 2005. He obtained a BSc degree and an Honours degree in Polymer Science; and in 2014 obtained an MSc degree in Polymer Science (*cum laude*) from the University of the Free State. He enrolled for a PhD degree in Chemistry at the University of Johannesburg in 2015. He is currently employed as a Postdoctoral Research Fellow at the Council for Scientific and Industrial Research (CSIR).

Mr Mofokeng's work dealt with the influence of nanoclay localization on the morphological development and properties of melt-mixed PP/LDPE/clay and PP/EVA/clay nanocomposites. In his doctoral study, novel morphologies of PP/LDPE blends, their structured-property relationship, and a suitable blend composition which is feasible for packaging application were reported. The candidate has demonstrated that selective localization of nanoclay in the PP/LDPE blends controls the nano-/microstructure of the blend composites. Longer EVA mixing times in the PP/EVA/nanoclay composites can be used to produce compounds with targeted properties. The candidate's work has laid a foundation for future studies regarding the role of nanoclay and its localization on the blowability of immiscible blends. The thesis has resulted in four international peer-reviewed publications, and has been presented at both local and international conferences. The candidate's work has also been featured on the cover page of an international peer-reviewed journal.

Supervisor: Prof S Sinha Ray

Co-Supervisor: Dr V Ojijo



Msomi, Phumlani Fortune (PhD)

Phumlani Fortune Msomi was born in Durban, KwaZulu-Natal in 1989. He matriculated from Lamontville High School, in 2006. In 2010 he obtained a National Diploma in Analytical Chemistry at the University of Johannesburg and in 2012 he obtained his BTech degree in Chemistry at the Tshwane University of Technology. In 2015 he obtained an MTech degree in Chemistry at the University of Johannesburg. During this time he also worked as a research fellow at the Council of Scientific and Industrial Research in Pretoria. He enrolled for a PhD degree in Chemistry in 2015 and was awarded an NRF Innovation Doctoral Scholarship.

Mr Msomi's research focused on the development of new anion exchange polymeric membranes fused with different nanomaterials such as Zinc Oxide, Titanium dioxide and Graphene oxide, for application in alkaline methanol fuel cells. The novelty of Mr Msomi's PhD was that he was able to propose and demonstrate that his anion exchange composite membranes provided a novel scheme for vehicular transportation and interaction of hydroxide ions (OH^-) with graphene oxide, and this led to high efficiency when applied in methanol alkaline fuel cells. These materials represented modern state-of-the-art fuel cell membranes which are suitable for energy generation for portable and stationary electrical devices. The candidate has published three articles in international peer-reviewed journals and one is still under review. His work has been presented at both international and local conferences. He was awarded the first prize for the best oral presentation at one of the conferences.

Supervisor: Dr J Ramontja

Co-Supervisor: Prof PG Ndungu

Co-Supervisor: Dr PT Nonjola (CSIR)



Ndlwana, Lwazi (PhD)

Lwazi Ndlwana was born in East London in 1984 and matriculated from Alpendale High School in 2002. He completed a National Diploma in Analytical Chemistry in 2006 at Walter Sisulu University. He performed in-service training at Summerpride Foods, and between 2007 and 2009, he worked at Dulux and SGS where his interest in Chemistry was influenced by his exposure to the preparation of organic / inorganic materials, minerals analysis, and environmental sample testing. Mr Ndlwana obtained a BTech degree in Analytical Chemistry at Walter Sisulu University in 2010 and an MSc degree in Nanoscience at the University of Johannesburg in 2014.

Mr Ndlwana's doctoral study investigated novel multi-synthetic approaches for the preparation of smart anti-fouling, stable, and cost effective low-maintenance membranes, for degradation of organic pollutants in water. He prepared and characterized nano-multicatalytic composite membranes. The prepared nanomembranes showed rapid degradation and mineralization of methyl orange dye and PCB 77 in simulated water samples, with high degradation efficiency > 99.9%. The candidate went a step further and proposed reaction pathways to explain the mechanisms of advanced oxidative processes. He observed reaction kinetics and thermodynamics of relatively lower energy than those reported in the literature. The developed techniques were applied in real water samples collected from some heavily polluted rivers. The candidate has produced three articles, one of which has been published in an international peer-reviewed journal, with two under review. His work has been presented at four international conferences and two local workshops.

Supervisor: Prof JC Ngila

Co-Supervisor: Dr K Sikhwivhilu (MINTEK)



Velempini, Tarisai Phillipa (PhD)

Tarisai Phillipa Velempini was born in Nyanga, Zimbabwe in 1983. She obtained her advanced levels (A-Levels) in 2001 at the Saint Francis of Assisi High School. In 2006 she obtained a BSc Honours degree in Chemical Technology from the Midlands State University. She obtained an MTech degree in Chemistry from the University of Johannesburg in 2014 and subsequently enrolled for a PhD.

The toxic nature of chromium(VI) and mercury necessitates their removal using robust and cheap materials especially in developing countries. In this doctorate study, Mrs. Velempini synthesized ion-imprinted polymer adsorbents based on a cellulose derivative for the selective removal of chromium(VI) and mercury(II) from aqueous solutions, thereby improving the adsorption efficiency and selectivity of the adsorbents for these metal ions. Furthermore, sulphur-containing ion imprinted polymers were applied as a sensor platform in the electrochemical detection of mercury(II) in water, thereby solving the challenge of interferences in metal analysis. The use of cellulose in the development of an adsorbent and a sensor has the advantages of lower cost, abundance and environmental sustainability as compared to traditional carbon-based adsorbents and sensors. Characterization of the novel polymers has provided valuable propositions on the binding mechanisms of the respective metal ions to the polymers during the removal and detection processes. The thesis has resulted in two internationally peer-reviewed publications and a presentation at the SACI Electrochemistry Symposium held at the University of Johannesburg in 2016.

Supervisor: Prof K Pillay

Co-Supervisor: Prof XY Mbianda

Co-Supervisor: Prof OA Arotiba



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



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