



Graduation Programme

The Future. Reimagined.



**Welcome to the
Graduation Ceremony
of the
University of Johannesburg
29 April 2019**

**Welkom by die
Gradeplegtigheid
van die
Universiteit van Johannesburg
29 April 2019**

**Le a Amogelwa
Moletlong wa Dikapešo wa
Yunibesithi ya Johannesburg
29 Moranang 2019**

**Niyamukelwa
eMcimbini wokweThweswa kweZiqu
weNyuvesi yaseJohannesburg
29 kuMbaso 2019**

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 Khan
BSc, BSc Hons, MSc, PhD (UWC)

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

Dr Y Ndema

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
Mr T Mati
Ms Z Matlala
Ms BJ Memela-Khambula
Mr K Mophutha
Prof A Parekh
Dr WP Rowland
Prof A Strydom
Dr M Tom

Programme

Monday, 29 April 2019 at 13:00

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

Mošupologo, 29 Moranang 2019 ka 13:00

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

Maandag, 29 April 2019 om 13:00

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 prosessie 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 prosessie die Ouditorium.

Uhlelo

uMsombuluko, 29 kuMbaso 2019 ngele-13:00

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/idiploma/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 Technology (B Tech)

Baloyi, Rito (Biotechnology)
Botopela, Sebolawe Euphodia (Biotechnology)
Eland, Nomhle Anthea (Food Technology)
Hlengani, Vutomi Tonny (Food Technology)
Khepheyi, Zanele (Food Technology)
Khoza, Gift Zandile (Biotechnology)
Lambatha, Banele Ezma (Food Technology)
Lefela, Tshepiso (Food Technology)
Lekoma, Emmanuel Ofentse (Biotechnology)
Mabaso, Anna Mangwase (Biotechnology)
Mahlangu, Simphiwe Precious (Food Technology)
Majafa, Bruce Mmoloki (Biotechnology)
Malaka, Mantwampe Johleen (Food Technology)
Maleke, Mpho Sebabiki (Food Technology)
Mangena, Kedibone Prince (Food Technology)
Mapheto, Kopano (Food Technology)
Mashaya, Bruce Lawrence Ngcebo (Food Technology)
Masuku, Lauryn Thoko (Food Technology)
Matos, Tshinde Isabel (Biotechnology)
Mavuso, Makhosazana Elizabeth (Food Technology)
Nchabeleng, Mpho Mamphoka (Biotechnology) **(with distinction)**
Nkgodi, Kamogelo Mavis (Food Technology) **(with distinction)**
Ntlele, Masego Bolo (Food Technology)
Pankendem Njamo, Fernande Olpa Joyce (Biotechnology) **(with distinction)**
Tivani, Passion (Food Technology)
Xulu-Maswili, Hlanzeka Siya (Food Technology)
Yarde, Renaldo Basil (Biotechnology)

2. Bachelor of Science (BSc)

Barnet, Brian (Computer Science and Informatics)
Bopape, Puseletso Evelyn (Computer Science and Informatics)
Chopdat, Khadeejah (Computer Science and Informatics)
Chopdat, Zayd (Information Technology)

Coetzee, Jaco (Computer Science and Informatics)
De Villiers, Robin Daniel (Computer Science and Informatics)
Dickson, Mathew Derek (Computer Science and Informatics)
Dikobo, Thato (Computer Science and Informatics)
Dlamini, Bernice Khensani (Computer Science and Informatics)
Dlamini, Emmanuel Bongani (Computer Science and Informatics)
Dube, Sihle (Computer Science and Informatics)
Dunne, Callum Matthew (Information Technology)
Ebrahim, Zaheer Mohamed (Information Technology)
Farrukh, Wardah (Computer Science and Informatics)
Gaba, Mlungisi Junior (Computer Science and Informatics)
Gabela, Thabiso (Computer Science and Informatics)
Henstock, Ryan Thomas (Computer Science and Informatics)
Hlatshwayo, Alicia Charman (Computer Science and Informatics)
Hlungwani, Tiyani (Computer Science and Informatics)
Itumeleng, Boineelo (Information Technology)
Julius, Kevin Matthew (Information Technology)
Juwawu, Obrain (Computer Science and Informatics)
Kaoma, Kafimbwa (Computer Science and Informatics)
Kgomo, Hope Nana (Computer Science and Informatics)
Khoza, Sunday (Information Technology)
Koukoutsis, Nicholas (Computer Science and Informatics)
Kruger, Byron (Information Technology)
Kumwenda, Malcolm Collin (Information Technology)
Legodi, Mathabatha Kleinboy (Computer Science and Informatics)
Legodi, Puseletso Betha (Computer Science and Informatics)
Lentsoana, Mogalagadi Ernest (Computer Science and Informatics)
Lushozi, Luncedo (Computer Science and Informatics)
Mabasa, Nhlanhla (Information Technology)
Mabaso, Cebisile Cynthia (Computer Science and Informatics)
Mabena, Hlakaniphani Mangwe (Computer Science and Informatics)
Macebele, Dunisani Roxley (Computer Science and Informatics)
Mahlangu, Makaziwe Laurender Dorcas (Computer Science and Informatics)
Makgafela, Dashney Maropeng (Computer Science and Informatics)
Makhokha, Tshivhidzo Samson (Computer Science and Informatics)
Malatji, Sibusiso Mthokozisi (Computer Science and Informatics)
Manganye, Oka Jethro (Computer Science and Informatics)
Manyathela, Robbie Zwangobani (Computer Science and Informatics)
Mashapha, Ndamulelo (Computer Science and Informatics)
Mashiane, Shirley Tsholofelo (Computer Science and Informatics) (**with distinction**)
Masina, Lesedi Queen (Computer Science and Informatics)
Mathebola, Thulile (Computer Science and Informatics)

Matla, Molefi (Computer Science and Informatics)
Mecwi, Joseph Mosala (Computer Science and Informatics)
Minnie, Matthew Anthony (Computer Science and Informatics) **(with distinction)**
Miza, Avumile Sivene (Computer Science and Informatics)
Mmoledi, Xolani (Information Technology)
Modau, Tebatso Terror (Computer Science and Informatics)
Mogale, Kolobe Alfred (Computer Science and Informatics)
Mogwasa, Thabiso Prudence (Computer Science and Informatics)
Mohapi, Lydia Mmabatho (Computer Science and Informatics)
Mohlahatsa, Solomon Malefane (Computer Science and Informatics)
Mokete, Bonga Henry (Computer Science and Informatics)
Morker, Jaimeel (Computer Science and Informatics)
Motala, Arshad Ahmed (Computer Science and Informatics)
Mothata, Pretty Phuti (Computer Science and Informatics)
Motsamai, Reoagile Gift (Computer Science and Informatics)
Mphekgoane, Adnan Ramaphosa Melvin (Computer Science and Informatics)
Musandiwa, Tshedza (Computer Science and Informatics)
Mutombo, Tracy Tshibola (Computer Science and Informatics)
Ncube, Merrline (Information Technology)
Ncube, Shereen Nobubelo (Computer Science and Informatics)
Ndaba, Zilingene Fortunate (Computer Science and Informatics)
Ndhlovu, Ntiyiso Wayne (Computer Science and Informatics)
Ndlovu, Shayne Khololwethu (Computer Science and Informatics)
Ndwandwe, Themba (Computer Science and Informatics)
Ngubane, Zamokuhle (Computer Science and Informatics)
Ngwenya, Cydrick (Computer Science and Informatics)
Nkomo, Valentine (Computer Science and Informatics)
Ogwok, Daniel (Information Technology)
Olivier, Ian Leon (Computer Science and Informatics)
Pillay, Sashen (Information Technology)
Quluba, Lisa (Computer Science and Informatics)
Ramafalo, Matome (Information Technology)
Ramatja, Ghana Linum (Computer Science and Informatics)
Ramatsella, Thato (Information Technology)
Ramoroa, Tshegofatso Mary-Jane (Computer Science and Informatics)
Ramurunzi, Pfunzo (Computer Science and Informatics)
Rapetswa, Frans Kabelo (Computer Science and Informatics)
Roux, Frans Viljoen (Information Technology)
Rust, Schalk Hendrik (Computer Science and Informatics)
Sadiki, Mutondavhathu Rossanne (Information Technology)
Sadomba, Samantha Chido (Computer Science and Informatics)
Salee, Naadira (Computer Science and Informatics)
Segami, Thabang Johnson (Information Technology)

Selowa, Thapelo Tremendous (Computer Science and Informatics)
Shahid, Arsalan (Information Technology)
Shaikjee, Waseem (Computer Science and Informatics)
Sibanda, Minenhle Emmanuel (Computer Science and Informatics)
Sibiya, Nombuso Juliet (Computer Science and Informatics)
Sithole, Lethuthando (Information Technology)
Sithole, Thato (Computer Science and Informatics)
Skosana, Zintle Samkelisiwe (Information Technology)
Slogrove, Kayleigh Joy (Information Technology)
Smith, Mervin Thebe (Computer Science and Informatics)
Sonkosi, Sikiwe Daisy (Computer Science and Informatics)
Spijkerman, Ruan (Information Technology) **(with distinction)**
Sumba, Muhiya Guellord (Computer Science and Informatics)
Tapani, Hangwelani Sandra (Computer Science and Informatics)
Tshabangu, Andile (Computer Science and Informatics)
Tsotetsi, Mokete Shadrack (Computer Science and Informatics)
Tsotetsi, Virginia Lerato (Computer Science and Informatics)
Tumane, Boitshoko Pabalelo (Computer Science and Informatics)
Viljoen, Jason Christopher (Information Technology)
Zikalala, Ntuthuko Lethokuhle (Computer Science and Informatics)
Zulu, Simo Cynthia (Computer Science and Informatics)
Zwane, Lihle Thando (Computer Science and Informatics)

3. **Bachelor of Commerce Honours (BCom Hons)**

Lebotsa, Lephatsa Moses (Informatics)
Kekana, Mmetja Phatholo (Informatics)

4. **Bachelor of Science Honours (BSc Hons)**

Alexander, Kyle Matthew (Information Technology) **(with distinction)**
Alley, Ezra Thomas (Information Technology)
Aly, Elton Shah (Computer Science)
Austin, Lucinda (Zoology)
Beine, Kaylee (Zoology)
Benetti, Samantha Chiara (Information Technology) **(with distinction)**
Bezuidenhout, Bianca (Zoology)
Bracke, Jacques Yves Monica (Informatics) **(with distinction)**
Chauke, Feliz Seventeen (Information Technology)
Chidzikwe, Fortune Tonderai (Computer Science)
Dahms, Heinrich Theodor Jacob (Zoology)

De Oliveira, Tanya Carina (Information Technology)
Dimo, Goodman Tshepo (Computer Science)
Dockrat, Aqee (Informatics)
Ford, Micah (Computer Science)
Goliath, Rowan Arthur (Physics)
Gololo, Lethabo (Zoology)
Govender, Lance (Information Technology)
Hiralal, Nina Nayan (Mathematical Statistics)
Hlatshwayo, Khethokuhle Good-Gift (Zoology)
Hlauli, Orton (Computer Science)
Jali, Lindiwe Happiness (Computer Science)
Jayakumar, Szarathkumar (Information Technology)
Jun, Lindi (Zoology) **(with distinction)**
Katametsi, Masego Kagiso (Physics)
Kinnear, Joshua David (Information Technology)
Kolenic, Anthony Benjamin (Information Technology)
Kowlaser, Saisha (Physiology)
Le Roux, Johannes (Information Technology) **(with distinction)**
Magolego, Isaac Selaelo (Physics)
Mahlare, Reabetswe Mpho (Computer Science)
Mahlophe, Katleho (Zoology)
Makhathini, Njabulo Editor (Informatics)
Makope, Daymore Tapiwa Munyaradzi (Physics)
Malik, Abid (Computer Science) **(with distinction)**
Manaka, Lethabo Mabotswe Bridget (Informatics)
Mangla, Chetan Sunilkumar (Information Technology)
Maphanga, Thulani (Information Technology)
Masango, Bathabile Elizabeth (Zoology)
Massam, Oliver James (Computer Science) **(with distinction)**
Mayapi, Sikhumbuzo Ndimphiwe (Information Technology)
Mese, Rendani Martin (Information Technology)
Moodley, Tevin (Information Technology) **(with distinction)**
Motha, Nomthendeleko (Physics)
Mthembu, Musa (Computer Science)
Ndaba, Jabulani (Zoology)
Ndeleni, Xoliswa (Zoology)
Ndlhovu, Buti (Information Technology)
Ndlovu, Andile (Computer Science)
Nene, Siphesihle Asanda (Zoology)
Ngobeni, Mbalenhle (Zoology)
Nkosi, Siyabonga (Computer Science)
Nthebe, Mxolisi Amos (Zoology)
Ntshudisane, Ofentse Kokoti (Zoology)

Oberem, Erin Frances (Zoology) (with distinction)
Rawjee, Shawn Mohan (Information Technology)
Sethole, Patrick (Zoology)
Shumane, Vela (Physics)
Sibanda, Brandon (Information Technology)
Sibeko, Ntombikayise Beauty (Physiology)
Singh, Thirusha (Computer Science)
Sithungu, Siphesihle Philezwini (Computer Science) (with distinction)
Teixeira, Oscar Liquito (Physics)
Verrall, Jessica-Sheay (Physics)
Wessels, Steven Martyn (Computer Science) (with distinction)

5. Master of Science (MSc)

Chukwu, Chidozie Williams Obumnaeme (Applied Mathematics)
Dissertation: Topological data analysis of time series data.
Supervisor: Dr MV Visaya
Co-supervisor: Prof C Villet

Combrinck, Cornelius Francois Meyer (Zoology)
Dissertation: A study of the arthropod diversity and regulating ecological drivers in Kemp's Cave, Monument Park Cave and Bakwena Cave, Gauteng.
Supervisor: Prof JF Durand

Cullinan, Michele Narda (Computer Science) (with distinction)
Dissertation: Revisiting the Society of Mind: Convolutional Neural Networks via Multi-Agent Systems.
Supervisor: Prof DA Coulter

Kapesi, Liberty (Physics) (with distinction)
Dissertation: Promoting carbon nanotube interlinking using ion implantation and high pressures in a diamond anvil cell.
Supervisor: Prof GR Hearne
Co-supervisor: Dr J Changundega

Lukhwareni, Refilwe (Aquatic Health) (with distinction)
Dissertation: Histology and ultrastructure of hepatic nodular alterations in *Clarias gariepinus* from a hyper-eutrophic freshwater ecosystem.
Supervisor: Prof JC van Dyk

Maeko, Mapula Elisa (Informatics) (with distinction)

Dissertation: Framework for User Awareness and Acceptance of Smart Card and Fingerprint-based Access Control to Medical Information Systems in South Africa.

Supervisor: Prof D van der Haar

Marks, Jonty Terence (Informatics) (with distinction)

Dissertation: Multi-Agent Negative Selection.

Supervisor: Prof DA Coulter

Murulane, Khuliso (Physics) (with distinction)

Dissertation: Structure of ${}^9\text{C}$ from Analyses of 300 MeV proton scattering data.

Supervisor: Prof S Karataglidis

6. Philosophiae Doctor (PhD)

Jacobs, Bincy Susan (Physics)

Thesis: Physical properties of $(\text{Cr}_{84}\text{Re}_{16})_{100-x}\text{Y}_x$ alloys ($Y = \text{V}, \text{Mn}$).

Supervisor: Prof ARE Prinsloo

Co-supervisor: Dr CJ Sheppard

Musyimi, Philip (Physics)

Thesis: Electrical transport behaviour at extreme pressure-temperature conditions in selected Fe based strongly correlated electron systems.

Supervisor: Prof GR Hearne

Ogunbunmi, Michael Olawale (Physics)

Thesis: Unusual Electronic and Magnetic Ground States in Praseodymium Intermetallic Compounds.

Supervisor: Prof AM Strydom

Osaye, Fadekemi Janet (Mathematics)

Thesis: Distance measures in graphs.

Supervisor: Prof P Dankelmann

Co-supervisor: Prof S Mukwembi (University of Zimbabwe)

Co-supervisor: Prof BG Rodrigues (University of KwaZulu-Natal)

Van Niekerk, Jan Hendrik (Computer Science)

Thesis: CESIMAS: A Continual Evaluative Self-aware Immune-inspired Multi Agent Critical Information Infrastructure Protection System.

Supervisor: Prof EM Ehlers

7. **Philosophiae Doctor *honoris causa* (PhD *hc*)**

Johnson, Katherine Coleman Goble



Jacobs, Bincy Susan (PhD)

Bincy Susan Jacobs was born in India in 1981. She obtained a BSc degree from the University of Kerala (India) in 2002, followed by an MSc degree in Physics (2004) and a B.Ed degree in Physical Sciences (2005) from the same institute. She has been a lecturer in Physics at the University of Johannesburg since 2006 and enrolled for a PhD at the University of Johannesburg in 2011.

Although Cr alloys are considered simple metals, these have fascinating properties that has resulted in many technological applications in the medical and data storage fields. The research presented in this thesis deals with the anomalous behaviour in physical properties of the $(\text{Cr}_{84}\text{Re}_{16})_{100-x}(\text{V},\text{Mn})_x$ alloys observed at low temperatures. Through an experimentally challenging project, novel results regarding the properties of the $(\text{Cr}_{84}\text{Re}_{16})_{100-x}\text{V}_x$ alloy system were found. These include the possible co-existence of superconductivity with antiferromagnetism, as well as evidence of a quantum critical point in this system. In the $(\text{Cr}_{84}\text{Re}_{16})_{100-x}\text{Mn}_x$ alloys studied, magnetic frustration led to the formation of a spin glass state. Both quantum criticality and magnetic frustration are key concepts in the field of condensed matter research at present. This work has resulted in seven peer-reviewed publications and several conference presentations. The candidate also received two awards for work presented at national conferences during her studies.

Supervisor: Prof ARE Prinsloo

Co-supervisor: Dr CJ Sheppard



Musyimi, Philip (PhD)

Philip Musyimi is a Kenyan citizen who completed his pre-tertiary education in Kenya and in the UK. He obtained his BSc (Hons) in Physics in 1995 from Jomo Kenyatta University of Agriculture & Technology, Kenya. In Oct-2000, he pursued a two-year postgraduate programme in semiconductor physics at the School of Physics & Astronomy at the University of Nottingham (UK), and obtained an MPhil degree in June-2002. He held a lecturer appointment from 2011 onwards at Kenyatta University (Mombasa). He used study-leave to improve his qualifications by registering for a PhD in the Department of Physics at UJ in January 2013.

The research focused on electrical-transport measurements up to high pressures in diamond-anvil cells (DACs). This entailed investigations on Fe-based charge-ordered (CO) compounds Fe_2OBO_3 (FBO) as well as LuFe_2O_4 (LFO), and the hybridization-gapped semiconductor FeSi. FBO and LFO are mixed-valence compounds in which separate Fe^{2+} and Fe^{3+} valences occur as a superstructure. They transform to new electronic phases at high pressures by way of dynamical electron hopping occurring amongst neighboring Fe sites (dimerization). Mr Musyimi demonstrated that these high pressure phases have persistent insulating behavior up to 300-350 kbar, rendering them as so-called Dimer Mott Insulators (DMIs) worthy of further study to much higher pressure. In semiconducting FeSi, Mr Musyimi's investigations reveal an unusual (non-conventional) metallic state emanates at high pressures above 150 kbar that does not involve structural symmetry changes. These investigations crucially complemented separate magnetic-electronic studies of these compounds, resulting in two publications in a premier international journal of his research field, namely Physical Review B.

Supervisor: Prof GR Hearne



Ogunbunmi, Michael Olawale (PhD)

Michael Olawale Ogunbunmi was born in Zaria, Nigeria. He attended Comprehensive College, where he attained his West African Senior School Certificate (2002). In 2005, he obtained a National Diploma in Science Laboratory Technology from the Federal College of Chemical and Leather Technology, Zaria. He was admitted into Ahmadu Bello University where he was awarded a BSc (Hons) in Physics (2009). He received an African Development Bank Scholarship in 2012 and was admitted into the African University of Science and Technology (Abuja), obtaining his MSc in Theoretical Physics (2013). He enrolled for his PhD at the University of Johannesburg in 2015.

Mr Ogunbunmi's doctoral study investigated Praseodymium (Pr) intermetallic compounds with various crystal structures and the site symmetries of the Pr³⁺ ion, where either the singlet or the non-Kramers doublet ground state is favoured. He sought to identify Pr-systems with the coexistence of two or more of the following ground states: superconductivity, heavy-fermion (HF) behaviour, quadrupolar and dipolar order parameters. The candidate's research reveals the complex nature of ground states that may emerge under certain conditions and have identified several HF systems with unusual electronic and magnetic behaviours. He also derived a scaling factor for Pr-based HF compounds, providing a basis for comparison with other known HF compounds. This work has been presented at national and international conferences, producing six international peer-reviewed articles and two publications in national conference proceedings. In addition he was awarded the Frank Nabarro Prize for the best Oral presentation at the SAIP 2017 conference.

Supervisor: Prof AM Strydom



Osaye, Fadekemi Janet (PhD)

Fadekemi Janet Osaye was born in Lagos, Nigeria in 1983. She obtained a BTech (Honours) degree in Industrial Mathematics at The Federal University of Technology, Nigeria followed by an MSc in Mathematical Sciences at the African Institute for Mathematical Sciences, Ghana (2013) and an MSc (summa cum laude) in Mathematics from UKZN (2015), where she was awarded the South African Association for the Advancement of Science (S2A3) Bronze Medal for the best dissertation in science. She enrolled for a PhD at the University of Johannesburg in 2015 and was awarded the Kovalevskaja Research Award 2018 for upcoming female mathematicians in Sub-Saharan Africa.

Graphs are mathematical models for real life networks, such as social, computer, or transportation networks. In her PhD research, Janet Osaye explored bounds on the average eccentricity of graphs not containing certain substructures. For such graphs, she improved an important bound in terms of order and minimum degree. She gave further improvements for graphs containing a vertex of large degree. She also obtained bounds on the average eccentricity in terms of the k -independence number, significantly generalising bounds from the literature. Although for many real life situations weighted graphs are a more appropriate model than graphs, so far only bounds on the average eccentricity of unweighted graphs are known. Janet Osaye managed to obtain the first general bounds in the literature that apply also to weighted graphs. The thesis has resulted in one international peer-reviewed publication, and national and international conference presentations.

Supervisor: Prof PA Dankelmann

Co-supervisor: Prof S Mukwembi (University of Zimbabwe)

Co-supervisor: Prof BG Rodrigues (University of KwaZulu-Natal)



Van Niekerk, Jan Hendrik (PhD)

Jan Hendrik van Niekerk obtained three degrees at the UJ, including his BSc in Information Technology, BSc Honours in Computer Science (**with distinction**), and an MSc in Computer Science. His entrepreneurial and inquisitive nature lead him to start a range of successful start-ups, before joining the largest marketing agency in the world (WPP). After leaving WPP and, finding a passion for data-driven actionable insights, Jan was head hunted to head up the data & analytics team for a multi-national technology retail company where he currently applies his passion for Data Science.

Mr van Niekerk's thesis explores the realm of self-awareness within a virtualised environment, instilling Multi Agent Systems with ambient intelligence towards improving the level of security within Critical Infrastructure. His thesis, titled CESIMAS (A Continual Evaluative Self-aware Immune-inspired Multi Agent Critical Information Infrastructure Protection System), takes an innovative best-practice oriented approach by combining ideal characteristics taken from research fields such as Artificial Immune Systems, Multi Agent Systems and Ambient Intelligence, proposing a novel model and prototype geared towards improving the level of Critical Infrastructure Protection within an organisation. The research has also led to international conference proceedings as well as a journal article.

Supervisor: Prof EM Ehlers



Johnson, Katherine Coleman Goble (PhD *hc*)

The Mathematician Katherine Johnson was born in 1918 in White Sulphur Springs, West Virginia. From a young age, Ms Johnson counted everything and could easily solve mathematical equations. She attended West Virginia State High School and graduated from high school at age fourteen. Ms Johnson received her B.S. degree in French and mathematics in 1937 from West Virginia State University (formerly West Virginia State College). She was one of the first African Americans to enrol in the mathematics program at West Virginia University. The mother of three daughters has been married to James Johnson for six decades, since 1959.

Upon completion of college, Ms Johnson began teaching in elementary and high schools in Virginia and West Virginia. In 1953, she joined Langley Research Center as a research mathematician for the National Advisory Committee for Aeronautics (NACA), where she put her mathematics skills to work. She calculated the trajectory for Alan Shepard, the first American in space. Even after NASA began using electronic computers, John Glenn requested that she personally recheck the calculations made by the new electronic computers before his flight aboard Friendship 7 – the mission on which he became the first American to orbit the Earth. Ms Johnson continued to work at NASA until 1986, combining her math talent with electronic computer skills. Her calculations proved critical to the success of the Apollo Moon landing program and the start of the Space Shuttle program.

Ms Johnson co-authored twenty-six scientific papers, has been the recipient of NASA's Lunar Spacecraft and Operation's Group Achievement Award and NASA's Apollo Group Achievement Award. On November 24, 2015, she received the United States' highest civilian award, the Presidential Medal of Freedom, from President Barack H. Obama. In 2018 Mattel released the Katherine Johnson Barbie doll.



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



A word of thanks to the UJ Alumni Association for sponsoring the flower arrangements at the University of Johannesburg graduation ceremonies.

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