

PROF JANE CATHERINE NGILA: DETAILED CURRICULUM VITAE

Prof Jane Catherine Ngila

Deputy Vice Chancellor- Academic Affairs

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Visiting Professor

1. Department of Applied Chemistry, **University of**

Johannesburg, South Africa

2. Department of Pure & Applied Chemistry

Masinde Muliro University of Science & Technology, Kenya



Current Position- Job Responsibilities of DVC-AA:

Prof Ngila is currently a Deputy Vice Chancellor in charge of Academic Affairs (DVC-AA) at Riara University, which involves providing leadership within Riara University in delivering the University strategy, objectives, and core purpose. Her office provides day-to-day leadership in both academic, research and administrative functions of the University, including finance. She is in-charge of formulating and implementing University policies, regulations, quality assurance encompassing standards and guidelines that create a framework for academic excellence, effective management, implementation and evaluation of University programmes and activities.

Research Awards & Fellowships & Membership

- i) African Union Kwame Nkrumah East Africa Regional Women Scientific Awards under the Basic Science, Technology & Innovation category- 24-25 January 2017 for excellence in research in water quality monitoring and treatment using nanotechnology.
- ii) South Africa Distinguished Women in Science (WISA) Award in the Physical Sciences and Engineering category awarded on 11 August 2016 by the Minister of Science & Technology, for excellence in research in water quality monitoring and treatment using nanotechnology.
- iii) Academy of Science of South Africa (ASSAf)- Awarded Membership- September 2016.
- iv) Africa Academy of Science (AAS) Fellow.
- v) Africa Academy of Sciences mentorship programmes for female university students in Africa.
- vi) Elected Fellow to The World Academy of Sciences (TWAS).
- vii) Membership in Professional Chemical Societies: UK Royal Society of Chemistry; American Chemical Society;
- viii). Nominated Co-Chair of the 2021 Commonwealth Science Conference

Mentorship /Community Engagement Activities:

- i) Chairperson of the St Angelas's Girls School in Kitui, Alumni Association.
- ii) Mentor of *Global Give Back Circle* - Girls Guiding Government Program, supporting a mentee, Ms Irene Wambui, supporting her education, and her livelihood at Starehe Girls Centre.
- iii) Member of UNESCO mentorship programme for Girls in STEM subjects.
- iv) Member of The African Academy of Sciences (AAS) Mentorship Programme

Education

- i) PhD (Analytical Chem)- Univ. of New South Wales (UNSW), Sydney, Australia (1991-1996)
- ii) MSc (Chem) - Kenyatta University (KU), Nairobi, Kenya (1987-1992)
- iii) BEd. Sci –First Class Hons: Chem (Major), Maths and Educ, KU, Nairobi, Kenya (1983-1986)
- iv) Certificate in Leadership- Gordon Institute of Business Science, Univ of Pretoria (2013-2014)

- v) Certificate of Policy & Procedures- AZTech Company, Dubai (2018)
- vi) Certificate of Emotional Intelligence, Kenya Institute of Management (2018)

Employment

- i) Deputy Vice Chancellor in charge of Academic Affairs, Riara University (Feb 2020-Jan 2022).
- ii) Deputy Director Training, Academic & Linkages (TAL), Morendat Institute of Oil & Gas, Kenya Pipeline Company (April 2017-Jan 2020).
- iii) Head of Applied Chemistry Department, University of Johannesburg, UJ (2013-2016)
- iii) Acting Director of Centre of Nanotechnology & Water -NIC/DST Node, Department of Applied Chemistry, UJ (2014-2016)
- iii) Coordinator of SA DST National Nanoscience Postgraduate Teaching and Training Platform (NNPTTP) at UJ (2012-2016).
- iv) Full Professor & Deputy Head of Applied Chemistry Department, Research & Postgraduate Studies, UJ (2011-2013)
- v) Senior Lecturer & Coordinator of Analytical Division/ Chair R&D, School of Chem, University of KwaZulu Natal (2006-2010)
- vi) Lecturer & Senior Lecturer--Coordinator Analytical Chem Division, Chemistry Dept, University of Botswana (1998-2006)
- vii) Lecturer/Tutorial Fellow- Analytical Chemistry Division, Chemistry Department, Kenyatta University (1989-1997)
- viii) Graduate Assistant -Department of Analytical Chemistry -University of New South Wales Australia (1991-1995)
- ix) Graduate Teacher Kitui Boys High School, Kenya (1986-1987)

Professional Memberships

- i). Academy of Science of South Africa (ASSAf) Sept 2016-todate
- ii) Water South Africa Journal Editorial Board Member: 2014-todate
- iii). SEANAC (Southern and East Africa Network of Analytical Chemists) Founding Member and Active Member, 2000-2010
- iv). Third World Women in Science (Organization of Women Scientists in the Developing World, OWSD) (Feb 1999-todate)
- v). American Chemical Society (1994-1996; Jan 2010)
- vi). Royal Chemical Society (1993-96: Jan 2010)
- vii). Royal Australian Chemical Institute (1993-1997: Jan 2010)
- viii). Kenya Chemical Society (1995-todate)
- ix). Germany Academic Exchange- Alumni DAAD (1989)
- x). Australia Universities Alumni, Kenya/South Africa (1996)
- xi). Botswana Chemical Society (2002-2006)
- xii). South Africa Conventional Institute (Oct 2006-todate)
- xiii). Africa Women in Science & Education (AWSE) (August 2010-todate)
- xiv). African Institute of Science (ASI) (December 2010-todate)

SUMMARY OF BIOGRAPHY (NARRATIVE)

Prof Jane Catherine Ngila received her Bachelor of Education in Science, BEd(Sci) and MSc in Chemistry from Kenyatta University, Kenya in 1986 and 1992, respectively. She obtained her PhD from University of New South Wales, Sydney, Australia. Her teaching and research career started in 1989 when she was employed as a tutorial fellow at Kenyatta University and later promoted to lecturer position in 1996. She also worked at the University of Botswana as a Lecturer/ Senior Lecturer (1998-2006), and at the University of KwaZulu Natal, Durban, as Senior Lecturer (2006-2011) before joining University of Johannesburg, as a Full Professor of Analytical/Environmental Chemistry in April 2011.

Prof Ngila was appointed Head of Applied Chemistry Department at the University of Johannesburg (April 2013- June 2016). In 2015, she was the **Ag.** Director of the Water Node of the Nanotechnology Innovation Centre of Excellence, a project funded by the South Africa's Department of Science and Technology (DST) through Mintek. In April 2017 she joined Morendat Institute of Oil & Gas, Kenya Pipeline Company as the Deputy Director for Training, Academic & Linkages of the Institute, until end of January 2020. On 6th February 2020, she was appointed as Deputy Vice Chancellor for Academic Affairs, at Riara University, Nairobi, Kenya.

Prof Ngila's Research Awards and Fellowships include: 2017 Award by African Union Kwame Nkrumah (East Africa Regional Women Scientific Awards under the Basic Science, Technology & Innovation category- for excellence in research in water quality monitoring and treatment using nanotechnology; August 2016 South Africa Distinguished Women in Science (WISA) Award in the Physical Sciences and Engineering category awarded, for excellence in research in water quality; Elected Member of Academy of Science of South Africa (ASSAf) in September 2016; Fellow of the Africa Academy of Science (AAS); Fellow of The World Academy of Sciences (TWAS); previous Membership in Professional Chemical Societies: Royal Society of Chemistry; American Chemical Society; Co-Chair of the 2021 Commonwealth Science Conference to be hosted by the Royal Society and the AAS.

Prof Ngila has trained over 100 Postgraduates including 22 Honours, 33 MSc and 30 PhD students including training of 18 Postdoctoral Fellows). Currently, she has a current research group of about 3 doctoral and 2 masters students registered at University of Johannesburg in Chemical Sciences. She has over 430 publications comprising of 201 journal articles, 15 book chapters, 17 conference proceedings, 37 Keynote/Invited Lectures and 160 Conference abstracts. She is rated by South Africa National Research Foundation (NRF-rated) with a Researchgate Score of 39.43; h-Index 24 and total citation of 1,825 with over 25,664 reads. She has Google Scholar h-Index of 28, i10-index 79, total citation of 2,580. https://www.researchgate.net/profile/Jane_Ngila/
<https://scholar.google.co.za/citations?user=NNc4NEYAAAAJ&hl=en>

Prof Ngila has taught various courses; First Year General Chemistry to Masters' in Chemistry in Analytical-, Environmental- and Industrial Chemistry in various Universities. Current research on nanotechnology for water purification; and mass balance modelling in wastewater treatment plants. She is focusing on validation of analytical techniques, water quality. She has disseminated her research findings in international conferences in more than 30 countries.

Prof has presented conference papers and workshops in different countries including; Algeria, Australia, Austria, Botswana, Brazil, Canada, China, France, Germany, Ghana, Ireland, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Philippines, Portugal, Senegal, Singapore, South Africa, Swaziland, Switzerland, Tanzania, Turkey, Uganda, UAE, UK, USA, Zambia, Zimbabwe, among others.

Prof Ngila was nominated to attend the Leadership training (2013/ 2014) and was awarded a Certificate of Leadership by the Gordon Institute of Business Studies (GIBS) at University of Pretoria. The Members of the Executive Leadership Group of the University of Johannesburg (UJ), comprised of the Management Executive Committee (VC, DVCs, Registrar and Chief of Staff in the VC's Office),

Executive Deans and Executive Directors. She was a Member of the Task Team of Ad Hoc Senate Committee for Promoting Staff and Student Access (student funding). She was a Member of Dean's Committee for Heads of Departments (2013-2016), as well as Member of Faculty's Higher Degrees Committee. She has sat in Panels for the appointment of Distinguished Visiting Professors of the UJ Flagships. In December 2015, she was appointed as one of the experts to represent the UJ water research theme, in a committee chaired by DVC Research, towards discussion with the South Africa's Free State Provincial Government Ministerial Officials towards a Memorandum of Agreement between the Provincial Government and the University of Johannesburg, on matters of education and youth's activities. In October 2016, she was nominated as a member of UJ Senate Executive Committee (SENEX)..

Prof Ngila has been a member of various Chemical Societies including; Royal Australian Chemistry Institute; American Chemical Society; Royal Society of Chemistry; South Africa Chemical Institute; and Kenya Chemical Society, among other academic societies. She received Awards from German Academic Exchange Service (DAAD) towards her MSc degree (1987-1989) and the Equity & Merit Scholarship Scheme- Australian International Development Assistance Bureau for her PhD (1991-1995). Other Awards include, Kenyatta University Vice Chancellor Research Award (October 1997), University of Botswana Research Award (June 2005); South Africa National Research Foundation (NRF) for high resolution scanning electron microscopy equipment (ZAR 10 million in 2010); NRF Award of ZAR 10 million in 2014 for flow field fractionation/ gas & liquid chromatography inductively coupled plasma mass spectrometer (FFF/GC/LC/ICP-MS); Water Research Commission Awards -(ZAR 850,000 in 2012; ZAR 650,000 in 2014; and ZAR 1 million in 2015), CSIR, ESKOM SASOL, among other research awards.

Prof Ngila was nominated to join the South Africa Department of Science & Technology (DST) Delegation to France (UNESCO Paris) and Germany (SA Embassy in Berlin), in January 2012, on a mission to promote SA research in nanotechnology and water, and establish links with partners in those two countries, in this research area. She gave a presentation entitled: *Technologies in environmental management- strategies by department of chemical technology@uj*. http://esastap.org.za/download/present_germany_08_2012.pdf

Prof Ngila has been a Member of Advisory Board of the Africa Utility Week on Clean Power/Energy and Water (joined in April 2015). In July 2015 she was nominated as a member of Team Water South Africa, a Committee that was chaired by the Minister of Water and Sanitation. She is regularly appointed to chair the NRF Panels of funding Applications as well act as a Reference Advisory Member and Reviewer of South Africa Water Research Commission projects in water research. In September 2015, she was nominated by DST/CSIR National Centre for Nanostructured Materials to join a delegation to represent South Africa on the *Algeria-South Africa Bilateral Cooperation*, on Nanotechnology & Water Initiatives.

Prof Ngila is a Visiting Professor at the University of Johannesburg (appointed in June 2017) and also at Masinde Muliro University of Science and Technology in Kenya (appointed in May/June 2015), and was a Key Partner on Nanotechnology projects sponsored by African Development Bank in Kenyatta University, Nairobi, Kenya. In 2015, she was invited by Addis Ababa University in Ethiopia as a Key Partner in establishing an Africa Centre of Excellence in Water Management sponsored by World Bank.

Prof Ngila, since 2012, has been a member of COVIDSET (Conference of Vice Chancellors and Deans of Science Engineering and Technology Institutes), hosted by Regional Bureau for Science in Africa (RBSA) and African Network of Scientific and Technological Institutions (ANSTI) in collaboration with UNESCO. In November 2013, she presented a paper entitled ***Nanotechnology applied in water purification for removal of metal and persistent organic pollutants***, at the 5th COVIDSET 2013 in Gaborone, Botswana. In September 2015, she submitted a paper for presentation at COVIDSET 2015, Enugu, Nigeria, entitled, *Human and Physical Infrastructure Requirements for Cutting-Edge Research in African Higher Education Institutions*. She is a member of International Network of Women Engineers & Scientists (INWES) and presented a paper entitled, *Nanosorbent materials for removal of inorganic and organic pollutants in water* on 19-21 November 2013, held in Nairobi, Kenya.

Prof Ngila has been a Member of Advisory Board for International Conference on Pure and Applied Chemistry (University of Mauritius in 2012 & 2016). She has been Advisory Board Member-representing the UJ Water and Health Research Group (UJ-WHRG) since 2012 to WaterNet/WARFSA/GWP-SA for Regional Institutional and Human Capacity in Integrated Water Resources Management (IWRM), in Southern and East African Countries. She is a founding member of Southern and East Africa Network of Analytical Chemists (SEANAC) and was one of the organizers of SEANAC conference series 2003-2010, sponsored by SIDA/Sweden and other agencies.

Prof Ngila was the Co-Chair of the 3rd Conference on Emerging Frontiers for Sustainable Water in August 2015, co-hosted by India Institute of Technology at Madras in Chennai India. The conference was sponsored by the NRF Newton UK-South Africa, held at the University of Johannesburg.

Prof Ngila has been a member of the Panel of Adjudicators for the L'Oreal UNESCO for Women in Science in Sub-Saharan African Programme (for PhD and Postdoctoral Research Fellows in Natural Sciences), in 2014 -2016.

Prof Ngila in April 2016 joined a Team of Researchers in South Africa, Egypt, Tunisia, France and Germany, to submit proposal to European Joint Programming Initiative (The Water JPI) on “Water Challenges for a Changing World” which is a relevant structure for Horizon2020.

Prof Ngila, in January 2016, was nominated as honorary member of the advisory board for the Jarislowsky Chair in Water and Global Health at Carleton University (Canada).

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DETAILED RESUME

1.0 PERSONAL PARTICULARS

1.1 Contact Address:

Prof Jane Catherine Ngila

Deputy Director, Training, Academic & Linkages

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Email: jcngila2015@gmail.com OR Catherine.ngila@kpc.co.ke

1.2 Date of Birth 6th February 1960

1.3 Gender Female

2.0 EDUCATIONAL TRAINING & EMPLOYMENT POSITIONS

1996 PhD (Analytical Chem)- Univ. of New South Wales (UNSW), Sydney, Australia

1992 MSc (Chem) - Kenyatta University (KU), Nairobi, Kenya

1986 BEd. Sci –First Class Hons: Chem (Major), Maths and Educ, KU, Nairobi, Kenya

2.1 AWARDS/ SCHOLARSHIPS

- i. **2017 African Union Kwame Nkrumah East Africa Regional Women Scientific Awards** under the Basic Science, Technology & Innovation category- **24-25 January 2017**
- ii. **2016 South Africa Distinguished Women in Science (WISA) Award** in the Physical Sciences and Engineering category awarded on **11 August 2016** by the Minister of Science & Technology.
- iii. **2016 Academy of Science of South Africa (ASSAf)- Awarded Membership- September 2016**
- iv. **2016, Honorary Member Jarislowsky Chair in Water and Global Health at Carleton University (Canada)-** of the Advisory Board –**January 2016**
- v. **1991-1995- EMSS Award- PhD Thesis: Flow Electrochemical-Potentiometric Detection of Ions using Metallic and Coated Wire Electrodes in Single and Multiple Cell Designs; Scholarship Award** by Equity and Merit Scholarship Scheme- Australian International Development Assistance Bureau (EMSS-AIDAB):- ***Prestigious Award for Candidates with First Class Honours Bachelor's Degree in Science Subjects, Ph.D. Degree*** at University of New South Wales, Sydney, Australia.
- vi. **1987-1990- DAAD Award- MSc** at Kenyatta University, Nairobi, Kenya: Scholarship Award by Deutscher Akademischer Austauschdienst (DAAD) - German Academic Exchange Service - for *MSc. Degree* , Kenyatta University, Nairobi. **Title of Thesis (MSc):** Kenyan Cooking Pots and Water as Sources of Dietary Aluminium; Scholarship Award by Deutscher Akademischer

Austauschdienst (DAAD) - German Academic Exchange Service: *Prestigious Award for Candidates with First Class Honours Bachelor's Degree in Science Subjects.*

- vii. **1983-1986- Overall Best Student in the Faculty of Science, Kenyatta University in 1986.** Bachelor of Education- Science; **1st Class Honours** in Chemistry (Major), Mathematics and Education.

2.2 EMPLOYMENT POSITIONS & JOB DESCRIPTIONS -MOST RECENT ORDER

2.2.1 Riara University

Prof Ngila is currently a Deputy Vice Chancellor in charge of Academic Affairs (DVC-AA) at Riara University, which involves providing leadership within Riara University in delivering the University strategy, objectives, and core purpose. Her office provides day-to-day leadership in both academic, research and administrative functions of the University, including finance. She is in-charge of formulating and implementing University policies, regulations, quality assurance encompassing standards and guidelines that create a framework for academic excellence, effective management, implementation and evaluation of University programmes and activities. She is responsible for overall direction and organization of activities in finance and administration within the University. She ensures business development should be geared towards the sustainability and advancement of the University, expected of a dynamic and ambitious institution. Her office is in charge of developing, implementing and monitoring quality assurance and risk mitigation systems that enable the University to meet and maintain the highest standards in teaching, learning, scholarly research output, and operational efficiency. She oversees development of strategies to attract, retain, empower, and motivate qualified and experienced staff, in line with the desired University culture. Other responsibilities include planning, coordinating and evaluating the optimal use of instructional facilities and resources of the University in liaison with Deans and Heads of Departments & Sections. She oversees administrative and regulatory compliance of the University. Overall, she oversees the academic programme development & implementation, students management and assessment at both undergraduate and graduate levels, as well as research programmes of the University.

2.2.2 Morendat Institute of Oil & Gas (April 2017-Feb 2020)

Deputy Director of the Morendat Institute of Oil & Gas (MIOG) under the Kenya Pipeline Company Ltd, Ministry of Energy & Petroleum from April 2017 to Feb 2020

Duties: (i) **Training:** Coordinating the Training of internal and external clients. Kenya Pipeline Company's main business is to store, transport and distribute petroleum products in the country and the East Africa region. Training of engineers who manage the pipeline, is very crucial and therefore the Morendat Institute of Oil & Gas advises and coordinates of KPC staff. In addition, MIOG is a regional Centre of Excellence for the Northern Corridor Integration project to build capacity in oil & gas skills for the East Africa region. I work closely with the Manager, KPC Foundation to design training needs for ROW communities. (ii) **Academic Programmes:** Oversee the development of academic programmes and certification including curriculum contents for short courses and national Certificates and Diploma. (iii) **Research-** coordinator of research and consultancy activities at KPC and create partnerships between the industry and academia. Recently, I started a Research, Innovation and Consultancy Unit (RICU) in KPC to facilitate funding allocation of the company's budget to enable researchers fund their start-ups projects towards consultancies as well as host young researchers innovators and mentorship. (iv) **Linkages:** Initiate, coordinate and manage linkages between MIOG and other institutes and industry stakeholders. Liaising with academic and research institutions, other stakeholders and national institutions in relation to research and skills transfer; developing memoranda of understanding & agreements (MOU/ MOA) between the Institute and other Organizations; (v)

Strategic Planning for MIOG: Develop, in consultation with the Director, the Master /Strategic Plan for the establishment /development and implementation with timelines. (vi) **Funding**- Identifying and engaging potential partners and donors to support the Institute both financially and materially to effectively carry out its mandate; develop proposals for funding from national and international organizations; (vii) **Administration**- managing the selection, training and examining of trainees to ensure quality of courses and relevance to sector needs; Overseeing the staff activities and operation of Morendat Training & Conference Centre (MTCC); (viii) **Policy and Procedures**- Overseeing the development of policy & procedures; (ix) **Recruitment and selection of both academic and administrative staff**; chairing the technical evaluation committees for selection & prequalification of trainers; (x) **Budgets & Procurement**- coordinating the planning, development and preparation of capital & operating budget; business case development and procurement proposals for the implementation of allocated budget for the institute; (xi) **Performance management** & appraisals of staff reporting to me.

2.2.3 University of Johannesburg (April 2011-March 2017)

I joined UJ in April 2011 and a year later, I was appointed Deputy Head of Applied Chemistry Department in charge of Research & Postgraduate Studies. In April 2013, I was appointed the Head of Applied Chemistry Department, University of Johannesburg (from 01 April 2013-31 June 2016). In 2015, I was the Acting Director of the Water Node of the Nanotechnology Innovation Centre of Excellence, a project funded by the DST through Mintek. At Morendat Institute of Oil & Gas, she has on several occasions acted the Director of the Institute (July 2017-todate).

As the Head of Applied Chemistry Department at UJ, I had to oversee the running of other flagship programmes in the Department namely, DST National Nanoscience Postgraduate Teaching and Training Platform (NNPTTP); Centre of Excellence in Strong Materials (CoESM) which was funded by DST through a partnership with the University of Witwatersrand; Centre for Nanomaterials Science Research (CNSR) which was one of the internal Centres of Excellence funded by the University of Johannesburg; South Africa Research Chair Initiative (SARChI) on Nanotechnology residing in the Applied Chemistry. In April 2017, I moved to Nairobi to take up an administrative post of deputy director of the Institute of Oil & Gas, at the same time I was appointed a Visiting Professor at UJ effective April 2017 until April 2020.

In 2013 I was nominated and elected by **UJ Members of the Executive Committee** to take part in the **Vice-Chancellor Executive Leadership Group (ELG) Program**. This program was offered by the Gordon Institute of Business Science (GIBS) and designed to enhance and develop the leadership capacities of the UJ Executive Members. The program consisted of workshops on leadership and management presented by experts in these fields. The training was followed by visits to key Universities in Singapore and Shanghai (China), where lectures by local experts in leadership were also presented. As part of the training, the Vice-Chancellor assigned participants projects on specific themes forming **Part of the long-term UJ-GES (Global Excellence and Stature) Initiative**. The projects were evaluated and presented in the presence of the UJ Council Members in June 2014. The Team Members from the Executive Leadership Group were; the *Registrar* (Prof Kinta Burger); *DVC Finance* (Mr Jaco Van Schoor); *Executive Dean of Faculty of Management* (Prof Daneel Van Lill); *Executive Dean of Humanities* (Prof Ronèl Johl) and *Special ELG Members*- Prof Catherine Ngila (Head of Applied Chemistry Department) and Prof Hassina Mouri (Medical Geology) who participated on the Pan-African Initiative namely the *Pan Africa Epi-Centre for Critical Engagement and Leadership*. After this training, I am regularly invited to attend UJ ELG workshops and fora of discussion on UJ vision and long term Strategic Thrusts of the University, among other leadership roles. We attended crash workshops leadership training organized by the University of Pretoria's Gordon Institute of Business Science (GIBS) which is a Leading Business School in South Africa and the Africa Continent, ranked among the top 100 Business Schools globally in the prestigious *Financial Times* Executive MBA Rankings. GIBS is located at Illovo, Johannesburg South Africa. The crash workshops included that I attended

include: (i). Workshop 1: Global Reputation Conversation March, 2015; (ii). Workshop 2: UJ Brand Manifesto, April, 2015; (iii). Workshop 3: UJ Brand Manifesto, Last phase, June 2015

Highlights of Administrative Positions at UJ

- Head of Applied Chemistry Department at the University of Johannesburg (UJ).
- Acting Director of the Mintek's Nanotechnology Innovation Centre Water Node at UJ, in 2015. This is a Centre of Excellence funded by the Ministry /Department of Science & Technology to promote the mining research in South Africa.
- Coordinator of the Nanotechnology and Water programme, one of the six recently awarded flagships at the University of Johannesburg.
- Coordinator of MSc Nanoscience at UJ, sponsored by the South Africa Ministry/Department of Science and Technology, offered jointly by a consortium of 4 universities located in 4 South Africa provinces of (Gauteng/Johannesburg, Western Cape, Free State, and Eastern Cape /Nelson Mandela Metropolitan).
- Member of the Executive Leadership Group (ELG) of University of Johannesburg that comprised of the Management Executive Committee (VC, 5x DVCs & Registrar), Executive Deans and Executive Directors.
- Member of the Senate Ad Hoc Committee Task Team 4, mandated to come up with a strategic plan for Students Funding at UJ.
- Member of the Dean's Committee of Heads of Departments.
- Member of Faculty Higher Degrees & Research Committee.
- Dean's representative for the Faculty of Science in charge of Doornfontein campus leadership which involves the coordination of the following academic and students affairs: student accommodation, counselling issues, timetable clashes and matters related to infrastructure upgrade, in the Doornfontein campus, spokesperson during the VC's campus visits.

2.2.4 University of Kwazulu Natal

At University of Kwazulu Natal (2006-2011), I managed various portfolios but I will only highlight a few:

- Academic Leader of Analytical Chemistry Division
- Chair of the Research and Publications Committee, School of Chemistry for both Westville and Pietermaritzburg Campuses.
- Coordinator of Honours degree programme
- Faculty Member of Promotion Committee

2.2.5 University of Botswana

At University of Botswana (1998-2006), I was in charge of various portfolios, but I will only highlight a few:

- Coordinator of Analytical Chemistry Section
- Department Board Secretary
- Department Representative to University Calendar Submissions
- Faculty Representative to various University committees (Gender, Sexual Harassment, Instrumentation, Clinics for mentoring girls in science subjects).

2.2.6 Kenyatta University

At Kenyatta University (1995-1997), I was in charge of the various programmes but I will only highlight a few:

- KU Representative to the Kenya National Research & Industrial Development Committee (NIREDCO), (1996/97), in partnership with KIRDI and Government Ministries of Commerce

and Industries as well as other stakeholders (KARI, ILRI, ICIPE, KEMRI, KEFRI, KEMFRI, etc.).

- Coordinator of the Analytical Chemistry Division
- Chemistry Representative to Faculty of Science Journal Editorial Board Committee (Kenyatta Science Journal), 1996/97.

2.3 LEADERSHIP- NATIONAL, REGIONAL AND INTERNATIONAL

While working in South Africa, I was a member of the National, Regional and International Committees as highlighted below.

i. Member of Advisory Board of the Africa Utility Week on Clean Power/Energy and Water.

Member of Team Water South Africa, a committee chaired by the Minister of Water and Sanitation.

ii. Chair of the Review Panels of National Research Foundation to assess funding applications.

iii. Member of the Reference Group of South Africa Water Research Commission, to advise researchers on the implementation of projects that fall within my area of expertise (water quality monitoring and resource management).

iv. Reviewer of Water Research Commission project proposals in the area of water and sanitation.

v. Member- SA-Bilateral Cooperation Panel -I sat in the DST panel for bilateral cooperation between Algeria and South Africa on Nanotechnology Initiatives.

vi. Member of the UNESCO Conference of Vice Chancellors / Deputy Vice Chancellors and Deans of Science, Engineering & Technology Institutions (COVIDSET) through my Alumni membership with the German Exchange programme (DAAD).

vii. Member of the Panel of Adjudicators of the L’Oreal UNESCO for Women in Science in Sub-Saharan African Programme (for PhD and Postdoctoral Fellows in Natural Sciences).

viii. Member of the USA based African Scientific Institute (ASI)-its focus is to inspire young people to pursue careers in science and technology, while simultaneously representing an interdisciplinary network of scientist, engineers, technologists, health professionals, and mathematicians. ASI provides resources and a forum for the exchange of technical information, expertise and professional development.

ix. Alumni of DAAD and Australian International Development Bureau as well as the University of New South Wales in Australia.

x. Visiting Professor at Masinde Muliro University of Science and Technology in Kenya.

xi. Key Partner for the Nanotechnology projects sponsored by African Development Bank- in Kenyatta University, Nairobi, Kenya.

xii. Key Partner on Research Projects submitted to World Bank- in September /October 2015; I supported proposals submitted to World Bank for funding by Kenyatta University aiming to establish a Centre of Excellence in Materials Science and Nanotechnology, in the School of Pure and Applied Sciences. I also supported World Bank application by Addis Ababa University in Ethiopia as a Key Partner in establishing an Africa Centre of Excellence in Water Management.

xiii. Convener of International Conference- in 2003, 2005, 2007, 2010, I was a member of the organization of SEANAC conference series (Southern and East Africa Network of Analytical Chemists), sponsored by SIDA/Sweden and other agencies. In August 2015, I hosted a Conference sponsored by SA NRF /Newton UK-South Africa-India Trilateral forum for Africa, India and the UK researchers. The event was entitled, the *3rd Conference on Emerging Frontiers for Sustainable Water (3-5 August 2015) at the University of Johannesburg, South Africa*.

xiv. Keynote Presentations: in May 2015, I was invited by the Kenya Chemical Society to give a keynote lecture held at the University of Nairobi, entitled, *Recent Advances in Nanotechnology for Water Treatment*. In December 2015, I was invited to present a paper on *Nanotechnology solutions for Water Quality Management* by the Kenya National Monitoring Agency (NEMA) in collaboration with the Effluent and Water Management Conference organizers.

xv. International Honorary Advisory Board Member of Carleton University's Global Water Institute- nominated in January 2016, as an advisor on Africa's Water Resource Management Advisory Board Member: International Conference on Pure and Applied Chemistry (University of Mauritius in 2012 & 2016).

xvi. Advisory Board Member- representing the UJ Water and Health Research Group (UJ-WHRG) -WaterNet for Regional Institutional and Human Capacity in Integrated Water Resources Management (IWRM) in Southern and East African Countries.

3.0 RESEARCH & PUBLICATIONS

3.1 RESEARCH INTERESTS

Recent research activities in collaboration with colleagues within & outside the Africa region include:

- Nanotechnology: Fabrication and application of electrospun nanofibers from biopolymers (cellulose & its derivatives; chitosan and its derivatives; lignin and its derivatives) and Nanocomposite polymer membranes for removal and treatment of contaminated.
- Constructed wetlands: monitoring the efficiency of pollutants removal in constructed wetlands (CWLs) during wastewater treatment
- Fabrication of synthetic polymer resins for purification of water (removal of metal ions, inorganics and organics substances).
- Surface modification of adsorbent materials for sample preparation and pre-concentration of metal ions and organics in fresh water systems. Analytical methods to improve detection limits of elements for ease of detection limits with low cost instrumentation. For example: pre-concentration of trace levels of metals for improved detection levels by flame atomic absorption spectrophotometer compared to the highly sensitive inductively coupled plasma-optical emission spectrophotometer / mass spectrometer).
- Fabrication of biosensors (mainly electrochemical and chemi-luminescence) for environmental analysis.
- Fabrication of chemically modified and polymer coated electrodes for determination of both inorganic and organic compounds.
- Chemical speciation studies of heavy metals in drinking water and wastewater from industrial effluents, using electrochemical-(stripping voltammetry) and spectrometric & chromatographic methods.
- Development of flow injection and chromatographic detection systems for determination of organic and pharmaceutical compounds by electrochemical and spectrometric hyphenated techniques
- Method development for electrochemical detection of gases such as sulphur dioxide and other gases using metal-ligand complexes as the sensing layers.

- Development of solid-state and chemically-modified electrodes, biosensors and gas sensors in flow injection & chromatographic analyses for environmental, biological and gas monitoring applications; adsorption studies using polymer membranes and biomass for removal of pollutants in contaminated water; studies of chemical speciation of heavy metals in water systems; method development for sampling and sample preparation to improve sensitivity of analytical techniques in trace level analysis of pollutants in freshwater bodies.

3.1.1 Analytical Techniques

The following techniques are regularly employed to implement the above activities:

- i. Surface and structural characterization of materials namely clay & soils; synthetic polymers: and biomass (e.g nanomaterials; soda ash, plant ash, fly coal, clay & solids, etc) using XRD, SEM/FEGSEM, TEM, AFM, NMR ATR-FTIR; DSC-TGA; Elemental Analyzer;
- ii. Metal Analysis using FAAS, GFAAS, ICP-OES; ICP-MS; XRF
- iii. Inorganic anions (fluorides, phosphates, sulphates, chlorides, nitrates, etc) using Ion Chromatography and UV-Vis Spectrophotometry.
- iv. Persistent organic pollutants analysis: HPLC-detectors, GC-detectors; LC-MS, GC-MS, etc

3.1.2 Research Experience /Collaboration

Prof Ngila is the immediate former Head of Applied Chemistry Department and a Professor of Analytical-Environmental Chemistry at the University of Johannesburg, South Africa. Her credentials include South Africa research NRF C2-Rated as well as various Awards received over the years during her professional growth.

University Experience in Research

Prof Ngila has about 25 years of research experience after obtaining PhD and has sustained record of publications in accredited journals; good track record of postgraduate research supervision and training of masters and doctoral levels. She is SA NRF-C2 rated and has about 400 publications comprising of 185 journal articles, 15 book chapters, 17 proceedings and 155 conference abstracts.

Prof Ngila key performance areas (KPAs) include the following: (i) Ability to entrench a research culture; mentor junior academics; supervision of research at honours, masters and doctoral levels, attract substantial research funding (has funding from NRF, ESKOM, SASOL, OPCW, WRC, CSIR, etc., in form of MSc /PhD student bursaries and research project running costs); While at UKZN, she developed research niche areas under ANEMAS (Analytical-Environmental and Material Science Research group, ANEMAS) in the School of Chemistry. The ANEMAS group focused on material development with emphasis on nanotechnology for water treatment using biopolymers. Prof Ngila has a publication record of over 190 (book chapters, proceedings and journal articles) in international journals including Analytical and Environmental Chemistry, Electroanalytical and Hazardous Materials, Analytical Letters, Talanta, Analytical Chimica Acta, just to mention a few. She has presented about 140 conference papers with about 24 invited lectures. Over the years she has recruited and registered and graduated about 100 Postgraduate students and Postdoctoral Research Fellows (22 Honours + 34 Masters + 30 PhD Students+ 14 Postdocs) while lecturing at Kenyatta University (1995-1997), University of Botswana (1998-2006), University of KwaZulu Natal (2006- March 2011), and University of Johannesburg (April 2011-todate). She currently is currently supervising 15 PhD students at the University of Johannesburg as a visiting professor.

3.1.3 COLLABORATIONS & PARTNERSHIPS THAT HAVE HAD OVER TIME

Collaboration at UJ

Prof Ngila while at UJ was the leader and coordinator of nanomaterials for water treatment. She coordinated the research activities of DST/Mintek /Nanotechnology Innovation Centre and the flagship for Nanotechnology and Water. The colleagues who worked closely in these projects include: Prof Patrick Ndungu (nanomaterials for energy and water); Dr Richard Moutloali (Nanotechnology membranes for water purification); Dr Philiswa Nomngongo (Analytical Methods for sample preparation and detection of inorganic chemical substances); Dr Soraya Malinga (Nanocomposite membranes for water purification); Dr Nsika Dlamini (Nanocomposite membranes for water photocatalytic degradation of organic and biological; and Dr Penny Govender on water quality monitoring and modelling of fate and behavior of trace elements.

Collaborations in South Africa

Universities /Institutions with collaborators

i. *University of KwaZulu Natal*

Prof Ngila has had collaborations in the School of Chemistry & Physics in Analytical-Environmental Chemistry, Inorganic-, Organic- and Physical Chemistry through collaboration with the following colleagues; Dr Moodley and Mr Bissessur (Analytical-Environmental); Prof Martincigh (Physical Chemistry); Prof Muhammed Bala (Inorganic Chemistry- metal-ligand complexes); Prof Vincent Nyamori (Inorganic /Green chemistry, synthesis of nanomaterials); and Prof Jonnalagadda-Physical/ Environmental Chemistry.

ii. *Tshwane University of Technology*: Prof Jonathan Okonkwo in Environmental Sciences. He specializes in environmental pollution monitoring in Gauteng Province of South Africa.

iii. *CSIR-SAPPI-SAICCOR*: Dr Tamara Bush (former Director in 2011):- Research in wood/cellulose Science (CSIR-SAPPI-SAICCOR Durban).

iv. *University of Western Cape*: Prof Emmanuel Iwuoha, Leader of Biosensors and Electrochemistry Research group in the SENSOR LAB in the Department of Chemistry.

v. *University of Western Cape*: Prof Leslie Petrik is the Leader of ENS research group-focuses on the environmental/materials science research including the chemistry of flyash and other waste materials.

vi. *Cape Town University of Technology*: Prof Corinne Greyling (textile division) specializes in material science and polymers and their application in South Africa industries. She is the Technical Director of Cape Organic Chemical Optimisation (Pty) Ltd in Cape Town. She was formerly based at University of Stellenbosch.

vii. *University of Fort Hare*: Dr Lilian Tichagwa-Materials Science/Polymers- formerly Prof Ron Sanderson's PhD student at Polymer centre at University of Stellenbosch.

viii. *Durban University of Technology*: Prof Vincent Bissetty- specializes in Organic/ Physical Chemistry/Analytical/Environmental Chemistry. He is doing research in organic and metal pollutants; computer modeling of experimental data as well as quality assurance and laboratory management.

Collaborations in Africa region (outside South Africa): Prof Ngila has had collaborations with the colleagues in various institutions in Africa, as follows:

i) *University of Botswana*: Prof Samuel Yeboah, Organic /Natural Chemistry (Seed Oil project); Analytical Research group with Dr Veronica Obuseng, Dr Kwenga Sichilongo and Dr Harriet Okatch;

ii) *Kenyatta University* in Kenya: Prof Caroline Langat Thoruwa, Organic Chemistry; her research focus in natural products chemistry working on drugs for malaria, water purification using plant materials; Dr Mary Mwangi botanist, among other colleagues. Analytical /Environmental Chemists- Dr Isaac Mwangi, Prof Ruth Wanjau, Prof Hudson Nyambaka, among others.

iii) *Jomo Kenyatta University of Agriculture and Technology (JKUAT)*

-Prof Ward Mavura of Jomo Kenyatta University of Agriculture and Technology, Principal, Arusha Campus, Tanzania. Prof Anthony Gachanja, Analytical Environmental Chemist- focus in sampling and sample preparation and Gas chromatography-Mass spectrometry.

-Dr Jackson Kiptoo (Prof Ngila's former PhD Student at University of Botswana) Analytical-Environmental chemistry- focus on water purification methods using solid phase extraction, biomass and modified resins.

iv) *Moi University*:

-Dr Yulita Mitei (Prof Ngila's former PhD student at University of Botswana)- focus on extraction and characterization of seed oils for applications in medical, food and energy uses.

-Dr Claire Muhanji –graduated from UCT (her former MSc student at University of Botswana)-doing research in synthetic drugs for malaria, HIV and related ailments.

v) *Kenya Marine Research Institute*

Dr Joseph Kamau. (Former PhD Student). His research is on environmental chemistry and water quality monitoring.

vi) *Masinde Muliro University of Science & Technology (MMUST)* -Dr Francis Orata - Collaboration between our Department at Masinde Muliro University of Science & Technology (MMUST) in Kenya. UJ and MMUST have signed MOA. After being appointed as Adjunct Professor of Chemistry.

vii) *Multimedia University of Technology (MUT)*- Dr Dickson Andala- Nanotechnology for water treatment.

Collaborations Outside Africa: Prof Ngila has had collaboration with the following institutions/Researchers:

1. *University of Campinas, - Faculty of Technology, Limeira Brazil*; Prof Dr. Maria Aparecida Carvalho de Medeiros -Dept. of Environmental Sanitation, URL www.ft.unicamp.br/~mariaacm
Title Project: monitoring of s-triazine herbicides in surface water samples by solid phase extraction and liquid-liquid extraction using gas chromatography-ECD in sugarcane agriculture
2. *Nanyang Technological University, Singapore*; Prof Darren Sun:- Chemical Engineering. <http://www.ntu.edu.sg/home/ddsun> . **Title Project:** Membrane separation for desalination, water reclamation and water quality control. We are now co-supervising a PhD student (Mr Sphelele Sosibo) with Prof Darren Sun.
3. *Campus de Vegazana. University of León. 24071 León. Spain.* Prof Marta Otero Cabero, Department of Applied Chemistry and Physics. URL: www.cesam.ua.pt/motero. We are planning to submit EU FP7 proposal for funding by NRF. **Title Project:** Treatment and management of the sewage sludge produced from the wastewater treatment.

4. *Leipzig, Germany, Centre for Environmental Studies* -Dr Peter Kusch (deceased in 2015); collaborator was on Wastewater treatment for removal of inorganic, organic and microbiopes using plants in constructed wetlands.
5. *University in Colombia Pereira*; Prof Diego Parades- collaboration with, on Wastewater treatment using constructed wetlands.
6. *University Bayreuth, Germany* -Professor Hartmut Frank: Editor in Chief, Toxicological & Environmental Chemistry.
7. *Stockholm University Sweden*: Dr Kuria Ndungu,—specializes in analytical /environmental chemistry working on marine research &/geotraces analysis.
8. *University of New South Wales, Sydney, Australia* -Prof Brynn Hibbert,: -Expert in Chemometrics/Statistical data analysis, Experimental Design and Quality Assurance in Testing & Measurements; Electrochemistry and chemical/biosensor techniques.
9. *University of New South Wales, Sydney, Australia*- Prof Vicki Chen and Prof Pierre Le-Clech, UNESCO Centre for Membrane Science and Technology, School of Chemical Engineering.
10. *Institute of Technology Madras Chennai, India*, Prof Thalappil Pradeep Institute, Chemistry Department, Nanotechnology for Water Treatment.
11. *Institute of Technology Tallaght (Dublin)*, Prof Eithne Dempsey, Director of the Centre for Research on Electroanalytical Technologies, Dublin, Ireland.
12. *University of Aveiro*, Prof Valdemar Esteves, Centre for Environmental and Marine Studies, Aveiro, Portugal
13. *Universidad de León*, Prof Marta Otero, Chemical Engineering and Environmental Studies, Leon, Spain.
14. Prof Mustafa Soylak, Erciyes University, Prof Mustafa Soylak, Department of Chemistry, Science Faculty, Kayseri-Turkey.

3.1.4 Funding Received: Organizations

Funding: Grants /Proposal Awards (1997-todate): Received from various Organizations:

- i. Kenyatta University Vice Chancellor Award Dec 1997/Feb1998
Title of the Proposal: Online Flow Analyzers for Environmental Pollutants
- ii. University of Botswana Research and Development Office (Large Grant Awards), 2005
- iii. UKZN Research office (Competitive Research Awards) 2006-2010
- iv. University of KwaZulu Natal Research Office
- v. Organization for Prohibition of Chemical Weapons, OPCW (The Netherlands)
- vi. South Africa Water Research Commission (WRC)
- vii. South Africa National Research Foundation (NRF)
- viii. Council for Scientific and Industrial Research (CSIR)
- ix. SASOL-Petrochemical industry
- x. ESKOM-Power/ Electricity Industry

- xi. Swedish International Development Cooperation Agency (SIDA)
- xii. International Foundation for Science (IFS), Sweden
- xiii. Sigma Xi, The Scientific Research Society, USA
- xiv. South Africa National Research Foundation (NRF)
- xv. Organization for Women in the Developing World

3.2 KEYNOTE/ INVITED LECTURES

1. **J Catherine Ngila (2019)**. Exceed-Swindon regional experts' workshop on modern and traditional ways of water resource management in Africa, May 5 – 9, 2019, Durban, South Africa
2. **J Catherine Ngila (2019)**. Women Leadership in Oil & Gas, Turkana University College, 14-15 March 2019
3. **J Catherine Ngila (2018)**. NanoStructured Materials and Devices (ICNSMD-2018)" from December 17-20, 2018 at University of New Delhi, India
4. **J Catherine Ngila (2018)**. How to make STEM attractive for girls and women: enablers and inhibitors (TED Talk). The 11TH African Academy of Sciences General Assembly, '*Our history, impact and the future*', CSIR Convention Centre, Pretoria, South Africa: 10 – 11, December 2018.
5. **J Catherine Ngila (2018)**. Science for Development: Supporting Manufacturing, Affordable Housing, Universal Healthcare and Food Security (MH²F) 1st Annual Conference on Science for Development: University of Nairobi, Kenya 24th -25th October 2018.
6. **J Catherine Ngila (2018)**. The Role of Science, Technology& Innovation in Advancing Kenya's Four Pillar Development Agenda for H²FM- Presentation at the Multimedia University of Kenya Annual Innovation Week for 2018: Embracing Sustainable Technology to Spur Innovation in Realization of the Kenya's Big 4 Agenda. 28th September 2018
7. **J Catherine Ngila (2018)**, Research Activities in Nanotechnology - Presentation to Postgraduate Students at Kenyatta University sponsored by Africa Development bank 23-24 August 2018, Nairobi Kenya.
8. **J Catherine Ngila (2018)**, Harnessing Research Output for Sustainable Development. What are the drivers and indicators? 1st Pan African International Research Congress, Masinde Muliro University of Science & Technology (MMUST), Grand Royal Swiss Hotel Kisumu, Kenya 18-22 June 2018.
9. **J Catherine Ngila (2018)**. Nanotechnology and the Fourth Industry Revolution- for Sustainable Development. 1st Pan African International Research Congress, Masinde Muliro University of Science & Technology (MMUST), Grand Royal Swiss Hotel Kisumu, 18-22 June 2018
10. **J Catherine Ngila (2018)**, Equality and parity in science for peace and development, a look at the Oil & Gas industry; Celebrating the international day for women and girls in science. UN Complex in Gigiri, Nairobi, Kenya, 12 February 2018. **UNESCO Invited Lecture**
11. **J Catherine Ngila (2017)**, Human Capacity) for High Quality Research Output: The South African National Research Foundation Experience. *Gender Equality in Science: Myths, reality and Future perspectives-UNESCO*. Theme- Celebrating International Day for Women and Girls in Science. February 11th 2017 at the UN Nairobi Office, Kenya. **UNESCO Keynote Lecture**
12. **J Catherine Ngila (2017)**, The role of industries in promoting girls' and women's participation in stem education and careers: a case study of Kenya Pipeline Company. Conference on Girls' Education in Africa: Towards a Regional Strategy on STEM Education-Partnerships in stem education in Africa. Lusaka, Zambia, 22 August 2017. **UNESCO Invited Lecture**

13. **J Catherine Ngila (2016)**, Modified Nanocomposite Materials for Removal of Water Pollutants, International Conference on Applied Chemistry, October 17-18, 2016 Houston, USA (**Keynote**)
14. **J Catherine Ngila**. Nanotechnology: An Emerging Wastewater Treatment Innovative Solution (2015). 5th Effluent & Water Management Conference **8-9 December 2015**, Hotel Royal Orchid Azure, Nairobi, Kenya. (**Invited**).
15. **J Catherine Ngila**. Nanotechnology for Water at the University of Johannesburg. *Algeria-South Africa Workshop on Nanotechnology for Water and Energy, at Algiers, under bilateral cooperation between South Africa and Algeria. 26-30 September 2015.*
16. **J Catherine Ngila**. Human and Physical Infrastructure Requirements for Cutting-Edge Research in African Higher Education Institutions, *6th Sixth Regional Conference of Vice-Chancellors Provosts and Deans of Science, Engineering and Technology (COVIDSET 2015)* at Nike Lake Resort, Enugu, Nigeria **4-7 October 2015. (Invited)**
17. **J Catherine Ngila**. Women in Science & Engineering: How can they play a role in the Water Agenda, National Women in Water Consultative Conference– CSIR International conference Centre, Pretoria, South Africa, **31 August 2015. (Keynote)**
18. **J Catherine Ngila**. Water Treatment using Nanomaterials at University of Johannesburg. 3rd Conference on Emerging Frontiers for Sustainable Water: A Trilateral Partnership Africa-India-UK: Protea Wanderers Hotel, Johannesburg, **3-5 August 2015. (Invited)**
19. **J Catherine Ngila**. Nanocomposite materials for water treatment Invited Lecture: The 3rd International Symposium on Electrochemistry under the theme “*Materials, Analytical and Physical Electrochemistry Today*” (*MAPET’15*)” hosted at the University of the Western Cape (Bellville, South Africa), from **26-28 May 2015. (Invited)**
20. **J Catherine Ngila**. Infrastructure requirements for high quality research output. Invited Lecture at Masinde Murilo University of Science and Technology (MMUST) in Kakamega Kenya, **11-14 May 2015. (Keynote)**
21. **J Catherine Ngila**. Recent advances in nanotechnology for water treatment. KEYNOTE LECTURE at the *Kenya Chemical Society Conference 5*, held at University of Nairobi, Kenya 5-8 May 2015. (**Keynote**)
22. **J Catherine Ngila**, Nanosorbent materials for removal of inorganic and organic pollutants in water. *International Symposium on macro- and Supramolecular Architects and Materials (MAM14): From Innovation to Commercialization*; Emperors Palace Hotel, Johannesburg RSA, **23-27 November 2014. (Invited)**
23. **J Catherine Ngila**, Nanotechnology and Water Research at the University of Johannesburg The All African Nanoscience Nanotechnology Initiative Workshop held at the University of Western Cape organized by the International Cooperation and Assistance under the Organization for Prohibition of Chemical Weapons. **19-21 November 2014. (Invited)**
24. **J.C. Ngila**, Dechlorination of pesticides in water using metal nanoparticles. South Africa/Egypt Collaboration Workshop Program, Tshwane University of Technology, Pretoria, **16 October 2014. (Invited)**

- 25. J Catherine Ngila**, Nanosorbent materials for removal of inorganic and organic pollutants in water. Regional Conference of the International Network of Women Engineers & Scientists (INWES). Nairobi Kenya, 19-21 **November 2013. (Invited)**
- 26. J Catherine Ngila**. Nanotechnology applied in water purification for removal of metal and persistent organic pollutants, *5th fifth Conference of Vice-Chancellors and Deans of Science, Engineering and Technology (COVIDSET 2013)* in Gaborone, Botswana, 6-7 November **2013. (Invited)**
- 27. J Catherine Ngila**, Nanocomposite Membranes doped with Metal Catalysts for Degradation of Organics and Microbes; and Nano- and Reverse- Osmosis Membranes for Desalination in Water Treatment. Kenya Marine and Fisheries Research Institute (KMFRI) **Workshop on the 6th and 7th of December 2012. (Keynote)**
- 28. J Catherine Ngila: II. *Electrospun nanofibers for preconcentration and removal of inorganics in water and wastewater*** Invited Speaker, Trace Analysis Workshop which will be held in Karadeniz Technical University Trabzon, Turkey **27 -30 June 2012. (Invited)**
- 29. JC Ngila:** Presented a Paper on, *Technologies in Environmental Management*, Invited delegate from University of Johannesburg; by Department of Science & Technology Strategic Partnerships with Germany Researchers, at Berlin 16-20 January **2012. www.esastap.org.za/download/present_germany_08_2012 (Invited)**
- 30. J Catherine Ngila**, Invited Speaker in the International Conference on **Frontiers of Polymers and Advanced Materials (11th ICFPAM)** to be held from **22 - 27 May 2011** at the Conference Centre, University of Pretoria, Pretoria, South Africa. **(Invited)**
- 31. JC Ngila-Keynote Speaker: *2nd Young Water Professionals 3-5 July 2011***. 2nd Regional Conference of the Southern African Young Water Professionals under the auspices of the International Water Association (IWA) and the Water Institute of Southern Africa (WISA): <http://www.wisa.org.za/ywp/ywpc2011/ywpcngila2011.htm>. **(Invited)**
- 32. J C Ngila*:** Speaker: **National Science Week (August 2010):** Lecture to *Selected Top-Achieving Grade 10-11 Students* from different high schools in KwaZulu Natal Province –held at science and technology education centre, University of KwaZulu Natal, Westville Campus, Durban South Africa **4th August 2010:** Title of Lecture:- *Why is Analytical Chemistry Important in a Modern and Healthy Society?* **(Keynote)**
- 33. Isaac Mwangi and J Catherine Ngila*:** Chemical and Biosorbents for Removal of Metals; International Conference for Pure and Applied Chemistry: La Plantation Hotel and Conference, Mauritius; **25-30 July 2010. (Invited)**
- 34. J. Catherine Ngila***, Adsorption of metal ions onto chemisorbents and biosorbents: kinetics and equilibrium studies. Kinetics in Analytical Chemistry, 10th International Symposium, Fountains Hotel Cape Town, South Africa 2-4 **Dec 2009. (Invited)**
- 35. J Catherine Ngila***, Ned D Silavwe and J K Kiptoo, Voltammetric methods in trace metal speciation analysis, Chemistry for Food Security and Sustainable Development SEANAC Conference held at Convention Centre, Royal, Swazi Sun, Ezulwini Swaziland 5-8 **July 2009. (Invited)**

36. J. Catherine Ngila*, Ned D Silavwe and Melisha Naicker (2008); Electrochemistry of Selected Organic Ligands for Speciation Studies of Metals: Possible Application in Pulp Industrial Effluent, *1st International Symposium on Electrochemistry* 9-11 July 2008 (ElectroChemSA 2008), University of Western Cape, Cape Town, South Africa 8-11 July 2008. (Invited)

3.3 LIST OF PUBLICATIONS`

3.3.1 Books / Chapters in Books & Monographs

1. AN Matheri, C Mbohwa, M Belaid, **JC Ngila (2018)**. Design Technology for Bioenergy Conversion of Organic Fraction of Municipal Solid Waste. *The Nexus: Energy, Environment and Climate Change*, 181-201.
2. Anthony Njuguna Matheri, Charles Mbohwa, Mohamed Belaid, Tumisang Seodigeng and **Catherine Jane Ngila (2018)**. Design Technology for Bioenergy Conversion of Organic Fraction of Municipal Solid Waste. *Book Chapter in Green Energy and Technology*. [DOI.10.1007/978-3-319-63612-2_12](https://doi.org/10.1007/978-3-319-63612-2_12)
3. John Okapes Joseph, Isaac W. Mwangi, Sauda Swaleh, Ruth N. Wanjau, Manohar Ram and **Jane Catherine Ngila (2017)**. A Comparative Study of Modified and Unmodified Algae (*Pediastrum boryanum*) for Removal of Lead, Cadmium and Copper in Contaminated Water. DOI: 10.5772/65745. <http://www.intechopen.com/books/water-quality>. Intechopen.com
4. Anthony Njuguna Matheri, Charles Mbohwa, Mohamed Belaid, Tumisang Seodigeng and **Catherine Jane Ngila (2016)**, "Waste to energy design from Organic Fraction of Municipal Solid Waste". *Renewable and sustainable energy review journal*, (Published). ISSN: 1364-0321. <http://www.journals.elsevier.com/renewable-and-sustainable-energy-reviews>
5. Anthony Njuguna Matheri, Charles Mbohwa², Mohamed Belaid*, **Jane Catherine Ngila (2016)**. Design Technology for Bioenergy conversion of Organic Fraction of Municipal Solid Waste, *Advancements in Energy, Environment and Climate Change Research: Making Connections and Building Thematic Links*, 2016. **Book Chapter**, April, 2016. (Submitted).
6. AN Matheri, M Belaid, T Seodigeng, **CJ Ngila (2016)**. The kinetic of biogas rate from cow dung and grass clippings. **Book Chapter**
7. RM Nthumbi, SM Musyoka, AA Adelodun and **JC Ngila (2016)**. Dechlorination of Selected Pesticides in Water using Catalytic Bimetallic (Fe–Pd) Nanoparticles Immobilized on MgAlO Support- In *Crystallizing Ideas – The Role of Chemistry*; Editors; P. Ramasami, M. Gupta Bhowon, S. Jhaumeer-Laulloo, H. Li Kam Wah (Eds.). ICPAC 2014 Springer, ISBN: 978-3-319-31758-8 (Print) 978-3-319-31759-5 (Online). Chapter 20, pp 297-322. http://link.springer.com/chapter/10.1007/978-3-319-31759-5_20
8. **J. Catherine Ngila**, Adedeji Adelodun, Richard Nthumbi and Vyom Parashar. The Africa Technopolitan (2015). Nanotechnology for water treatment in Africa. *The African Technopolitan, A Magazine of the Africa Centre for Technology Studies*, July 2015, page 51-57.
9. Bhekie B. Mamba, Titus A.M. Msagati, **J. Catherine Ngila**, Stephen Musyoka, Derrick Dlamini, and Sabelo D. Mhlanga (2014). *Advances in Nanostructured Polymers and*

Membranes for Removal of Heavy Metals in Water: Challenges and Possibilities: In Hydro-nanotechnology: Emerging Frontiers- Chapter 20. Tulip Pradeep and David E. Reisner (Eds). Published by CRC Press, Taylor & Francis pp 397 – 416.

10. Stephen M. Musyoka, **Catherine J. Ngila**, Andrew Kindness, Brenda Moodley, Leslie Petrik and Corrine Greyling (2012). *Preparation of cellulose nanofibers through electrospinning technique and modification of its structure for wastewater remediation.* Book Chapter, InTech-Open Access Publisher, www.intechweb.org Accepted 13 March 2012. (ISBN 979-953-307-911-9)-**Book Chapter**
11. Isaac W. Mwangi and **J Catherine Ngila*** (2011). Adsorption studies of lead, copper and cadmium ions in aqueous solution by ethylenediamine modified amberlite XAD-1180. *Chemistry for Sustainable Development*: Springer: Gupta Bhowon, M.; Jhaumeer-Laulloo, S.; Li Kam Wah, H.; Ramasami, P (eds) ISBN 978-90-481-8649-5, page 478. **Book Chapter.**
12. Philiswa Nomngongo, **J Catherine Ngila** and Titus Msagati (2011). *Indirect Amperometric Determination of Selected Heavy Metals Based on Horseradish Peroxidase Modified Electrodes.* *Biosensors - Emerging Materials and Applications.* Serra PA (ed). Intech Open Access Publisher: <http://www.intechweb.org/books/show/title/biosensors-emerging-materials-and-applications>. Chapter 25 ISBN 978-953-307-328-6; Page P 569-588. **Book Chapters.**
13. Jackson Kiptoo, **J. Catherine Ngila** and Ned D Silavwe (2010). Speciation Studies of Selected Heavy Metals in Different Water Systems: Application of stripping voltammetry and solid-phase extraction employing chelating agents with atomic spectrometric detection. Published by VDM Verlag (ISBN-10: 3639287789) and ISBN-13: 978-3639287783. Pages 1-180. Online version: *Amazon.co.uk*. **Book** http://www.amazon.co.uk/Speciation-Studies-Selected-Different-Systems/dp/3639287789/ref=sr_1_10?s=books&ie=UTF8&qid=1285673444&sr=1-10
14. **J. Catherine Ngila** and Teresa K. Sebunya (2003), *Science Careers' Guide Book for Botswana Schools: Women in Science Project.* Sponsored by Education, Democracy & Development Initiative (EDDI) Project; Faculty of Science, University of Botswana, Impressions House Ltd, Gaborone, Botswana. **Book**
15. **J.C. Ngila**, Chapters 9, 10 & 11, in J.A. Kalu (2002), *Project Writing in Higher Education*, Karima Publishers (ISBN 99912-998-0-7), Gaborone, Botswana, 2002, pp 75-114. **Book Chapters**
16. **J. Catherine Ngila** (1998), *Flow Injection Potentiometric Analysis with Power-Lab (Chart & Peaks) MacLab Physical Sciences Application Notes*, AN101A, AD Instruments, Australia, 1 February 1998. **Book Chapter**

3.3.2 Articles in Refereed Journals

NB. Asterisk Implies the Corresponding Author

1. Vallerie A. Muckoya, Patrick B. Njobeh, Philiswa N. Nomngongo & Jane C. Ngila (2020), Ultrasonic-Assisted Magnetic Solid-Phase Dispersive Extraction for Determination of Chlorpyrifos and Triclosan in Wastewater Samples prior to Liquid Chromatography Tandem Mass Spectrometry Detection, *Chromatographia* **83**, (2020), 373–383.
[DOI:10.1007/s10337-019-03848-0](https://doi.org/10.1007/s10337-019-03848-0). **Impact Factor (1.552 in 2018/2019).**

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3.3.3 Refereed Proceedings

1. Anthony Njuguna Matheri, Freeman Ntuli, Mohamed Belaid, Tumising Seodigeng and **Catherine Jane Ngila (2018)**. Co-digestion of Lawn Grass with Cow Dung and Pig Manure Under Anaerobic Conditions. Conference Proceedings: World Congress on Engineering (WCE 2016) & World Congress on Engineering and Computer Science (WCECS 2016). DOI [10.1142/9789813230774_0006](https://doi.org/10.1142/9789813230774_0006)
2. Anthony Njuguna Matheri, Freeman Ntuli, Mohamed Belaid, Tumising Seodigeng and **Catherine Jane Ngila (2018)**. Modified Gompertz model of biogas production from co-digestion of sewage sludge and food waste. Conference Proceedings: World Congress on Engineering (WCE 2016) & World Congress on Engineering and Computer Science (WCECS 2016). DOI.10.1142/9789813230774_0006
3. Anthony Njuguna Matheri, Mohamed Belaid, Tumising Seodigeng and **Catherine Jane Ngila (2016)**. Role and Impact of Trace Elements on the Anaerobic Co-digestion in Biogas Production. The 2016 International Conference of Manufacturing, Engineering and Engineering Management, *24th World Congress on Engineering (WCE 2016) London-UK, 29 June 2016*, ISBN: [978-988-19253-0-5](https://doi.org/10.1142/9789813230774_0006)
4. Anthony Njuguna Matheri, **Mohamed Belaid**, Tumising Seodigeng and **Catherine Jane Ngila (2016)**. "Modelling the Kinetics of Biogas Production from Co-digestion of Pig waste and Grass clippings". *24th World Congress on Engineering (WCE 2016) London-UK, 29 June-11 July 2016 (Published)*. ISBN: [978-988-19253-0-5](https://doi.org/10.1142/9789813230774_0006)
5. Anthony Njuguna Matheri, Mohamed Belaid, Tumising Seodigeng, **Catherine Jane Ngila**, and Charles Mbohwa (2016). "Mesophilic Anaerobic Co-digestion of Cow dung, Chicken Droppings and Grass Clippings," *Lecture Notes in Engineering and Computer Science: Proceedings of The World Congress on Engineering and Computer Science 2016*, 19-21 October, 2016, San Francisco, USA, pp967-970 (Published). ISBN: [978-988-14047-1-8](https://doi.org/10.1142/9789813230774_0006)
6. Anthony Njuguna Matheri, Charles Mbohwa, Mohamed Belaid, Tumising Seodigeng, and **Jane Catherine Ngila (2016)**. "Design Model Selection and Dimensioning of Anaerobic Digester for the OFMSW," *Lecture Notes in Engineering and Computer Science: Proceedings of The World Congress on Engineering and Computer Science 2016*, 19-21 October, 2016, San Francisco, USA, pp846-851(Published). ISBN: [978-988-14047-1-8](https://doi.org/10.1142/9789813230774_0006)
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8. N. Matheri, C. Mbohwa, M. Belaid, T. Seodigeng, **J.C. Ngila**, and E. Muzenda, "Waste to Energy Technologies from Organics Fraction of Municipal Solid Waste," *Lecture Notes in*

Engineering and Computer Science: Proceedings of The World Congress on Engineering and Computer Science 2016, 19-21 October, 2016, San Francisco, USA, pp1013-1017 (Published). ISBN: 978-988-14047-1-8.

9. Anthony Njuguna Matheri, Mohamed Belaid, Tumisang Seodigeng and **Catherine Jane Ngila (2016)**, “The Kinetics of Biogas Rate from Cow dung and Grass clippings”. *7th IENG International Conference of latest trends in Engineering and Technology (ICLTET’2015)* Pretoria, South Africa, 26-27 November 2015 (Published). ISBN 978-93-84422-58-5
10. Anthony Njuguna Matheri, Mohamed Belaid, Tumisang Seodigeng and **Catherine Jane Ngila (2016)**, “The Kinetics of Biogas Production Rate from Cattle dung and Grass in Batch Mode”. *2th CPSYG Conference for Planning Students and Young Graduate (CPSYG’2015)* University of Johannesburg, Auckland Park Kingsway Campus, South Africa, October 2015, (Accepted). ISBN 978-0-86970-732-6.
11. Jackson K. Kiptoo and **J. Catherine Ngila* (2004)**, Evaluation of the Metal Complexation Ability of Tannery and Brewery Wastewaters Using Competing Ligand Exchange Method, *9th International Chemistry Conference in Africa (9th ICCA); Chemistry Towards Disease and Poverty Eradication, International Conference Centre Arusha, Tanzania, 2nd -7th August 2004* Dar-es salaam University Press, ISBN 9987-9005-1-8.
12. O.Ohiokpehai*, **J. C. Ngila** and S. Mpuchane (2003), Editors: UB/USAID *Proceedings of Conference on Women’s Participation in Science and Technology..... Positioning Southern Africa for Equity*. Gaborone, July 01-04, 2002. ISBN 99912-89-05-4.
13. Zukiswa S. Raditladi, Boitumelo V. Kgarebe, **J. Catherine Ngila* (2003)**, Morphological influence of sodium hexametaphosphate on the industrially produced sodium carbonate (Soda Ash); In *International school on crystal growth of technologically important electronic materials*. Eds. K. Byrappa, T. Ohachi, M. Klapper, R. Fornari, Allied Publishers PVT Ltd New Delhi, India, p.178-183 (ISBN 81-7764-375-4).
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15. **J.C. Ngila***, A Versatile Environmental Pollution Monitor, *Proceedings of the 9th Gender and Science and Technology International Conference*: Accra, Ghana 4 - 9 July 1999.
16. **J.C. Ngila***, Peter W. Alexander, D. Brynn Hibbert (1998), Signal Amplification with Electrochemical Sensors in Environmental Monitoring: Multi-Sensor Systems, *Proceedings of the 4th Annual, Botswana Institute of Engineers Conference on Challenges in the 21st Century*, (August 6-7, 1998), p.28-40.
17. **J.C. Ngila***, Peter W. Alexander, D. Brynn Hibbert (1995), Response Amplification of Coated Wire -Micro Electrodes for Flow Analysis Based on NO₃⁻ -Doped Polypyrrole, *13th Australian Symposium on Analytical Chemistry and 4th Environmental Chemistry*, Darwin, Australia, (July 9-14, 1995), p.56-61.

3.3.4 Manuscripts Under Preparation

1. B. G. Fouda Mbanga, Paul P. Coetzee, **Jane C. Ngila**, Taddese W. Godeto. Ion Exchange Separation of Strontium and Rubidium in Tea Leaves on Dowex 50w-X8 Using the Complexation Properties of EDTA and DCTA. (Manuscript in preparation).
2. B. G. Fouda Mbanga, Paul P. Coetzee, **Jane C. Ngila**, Taddese W. Godeto. Provenance Determination of Rooibos Tea using Strontium Isotope Ratio Measured by Inductively Coupled Plasma Mass Spectrometry. (Manuscript in preparation).
3. Bonani Seteni, **J.C. Ngila***, K. Sikhwivhilu, R.M. Moutloali. Dechlorination of trichloroethylene in waste water by the synthesized iron, nickel and iron-nickel bimetallic nanoparticles.
4. Heena Madhav, Gerhard Gericke, Shivan Mishra, **J. Catherine Ngila*** Scaling potential as a function of metal-doc complexation in cooling and raw water at Eskom power stations
5. Seteni, B., **Ngila, J.C.**, Sikhwivhilu, K., Moutloali, R.M., 2013. Convective flow degradation of 3, 3', 4, 4' -tetrachlorobiphenyl (PCB77) by Ni/Fe-L-Lysine/PAA/PVDF nanocomposite membrane (in preparation).
6. B. Mabhena, **J. C Ngila***, E. Van Zyl, V. Keshav. Monitoring of contaminants (physico-chemical and bacteriological parameters) in wetland filters: A case study in Gauteng Province.

3.3.5 List of Names of Elsevier Journals Published

1. Analytica Chimica Acta: **ACA**
2. Applied Surface Science: **apsusc**
3. Carbohydrate Research: **car**
4. Carbohydrate Polymers: **carbpol**
5. Chemical Engineering Journal; **cej**
6. Chemosphere: **chem**
7. Desalination: **des**
8. Ecotoxicology and Environmental Safety; **eess**
9. Food Chemistry: **foodchem**
10. Fuel Processing Technology: **fuproc**
11. Journal of Hazardous Materials: **HAZMAT**
12. Journal of Environmental Management: **jema**
13. Journal of Environmental Sciences: **jes**
14. Fuel: **jfue**
15. Journal of Organometallic Chemistry: **jorganchem**
16. Physics and Chemistry of the Earth: **JPCE**
17. Materials Chemistry and Physics: **matchemphys**
18. Microchemical Journal: **microc**
19. Process Safety and Environmental Protection: **psep**
20. Spectrochimica Acta Part B: Atomic Spectroscopy: **sab**
21. Separation and Purification Technology: **SEPPUR**
22. Talanta: **tal**
23. Water Research: **wr**
24. Water Resources and Industry: **WRI**

3.4 LIST OF CONFERENCE / WORKSHOP PRESENTATIONS

1. Odwa Mapazi, Philemon K. Matabola, Richard M. Moutloali, **Catherine J. Ngila. (2016)** Towards rapid and selective colourimetric detection of heavy metal ions in water using polydiacetylene-functionalised electrospun nanofibers. *Waternet/WARFSA/GWP-SA*

Symposium on Integrated Water Resources Management: Water Security, Sustainability and Environment in Eastern and Southern Africa. Gaborone International Convention Centre, Botswana, 26–28 October 2016.

2. Odwa Mapazi, Philemon K. Matabola, Richard M. Moutloali, **Catherine J. Ngila.** (2016) A urea-modified polydiacetylene-based high temperature reversible thermochromic sensor: Characterisation and evaluation of properties as a function of temperature. *International Conference on Environment, Materials and Green Technology*, Vaal University of Technology, Sebokeng, South Africa. 24–25 November 2016.
3. L. Ndlwana, **J. C. Ngila**, K. Sikhwivhilu (2017). Preparation of pH sensitive membranes via microwave assisted synthesis of PES and characterization for water treatment. DST/Mintek Nanotechnology Innovation Centre, Symposium at Medical Research Council, Cape Town, 25 – 26 January, 2017.
4. B. Seteni, N. Rapulenyane, M. Mathe, H. Luo, **J.C.Ngila** (2017). $0.5\text{Li}_2\text{MnO}_3 \cdot 0.5\text{LiMO}_2$ occluded with LiFePO_4 cathode material for lithium ion battery. **Poster presentation.** 2nd SACI Gauteng North Young Chemist Symposium. South Africa: 3rd Oct 2017 (**First place for best poster presentation**).
5. B. Seteni, H. Luo, **J.C. Ngila** (2017). $x\text{Li}_2\text{MnO}_3 \cdot (1 - x)\text{LiMO}_2$ occluded with LiFePO_4 cathode material for lithium ion battery. **Oral presentation.** 1st Africa Energy Materials conference (AEM-2017). CSIR-Pretoria Convention Centre, South Africa: 28th March - 31st March 2017.
6. B. Seteni, H. Luo, J.C. Ngila (2016).. Structural and electrochemical behavior of $\text{Li}[\text{Li}_{0.2}\text{Mn}_{0.54}\text{Ni}_{0.13}\text{Co}_{0.13-x}\text{Al}_x]\text{O}_2$ ($0 \leq x \leq 0.08$ wt%) positive electrode material for lithium ion battery. **Oral presentation.** Centre of Renewable Energy and Water (CREW) Symposium. Vaal University of Technology, South Africa: 24th Nov - 25th Nov 2016.
7. B. Seteni, H. Luo, J.C. Ngila. Improved electrochemical performance of lithium-manganese-rich cathode electrode for lithium ion batteries. **Poster presentation.** Annual National Renewable and Sustainable Energy Postgraduate Symposium (REPS2016), University of Fort Hare, South Africa: 5th Sep - 6th Sep 2016 (**First place for best poster presentation**).
8. B. Seteni, H. Luo, J.C. Ngila. Improved electrochemistry of $\text{Li}_{1.2}\text{Mn}_{0.54}\text{Ni}_{0.13}\text{Co}_{0.13}\text{O}_2$ by LiFePO_4 cathode material for lithium ion batteries. **Oral presentation.** 1st SACI Gauteng North Young Chemist Symposium. South Africa: 19th Oct 2016 (**First place for best oral presentation**).
9. EFC Chaúque, AA Adelodun, LN Dlamini, CJ Greyling, RC Sekhar, **JC Ngila.** (2016) Synthesis and characterization of TiO_2 nanoparticles supported on functionalized electrospun polyacrylonitrile nanofibers International Conference on Environment, Materials and Green Technology from 24-25th November 2016 at Vaal University of Technology, Southern Gauteng Science and Technology Park, Sebokeng, South Africa. Oral presentation.
10. EFC Chaúque, LN Dlamini, CJ Greyling, **JC Ngila** (2016). TiO_2 nanoparticles uniquely supported on functionalized electrospun polyacrylonitrile nanofibers for photodegradation of organic pollutants from dye effluents. The 17th Waternet Symposium on integrated water resources management: water security, sustainability and development in Eastern and Southern Africa, 25th – 28th October 2016, Gaborone International Convention Centre, Gaborone, Botswana. Oral presentation (*Award 1st Position, Best Student Presentation*).

11. L. Ndlwana, **J. C. Ngila**, K. Sikhwivhilu, R.M. Moutloali (2016). Microwave assisted graft synthesis and characterization of polyethersulfone-g-poly(methacrylic acid) and polyethersulfone-g-poly(maleic acid) and their pH responsive character. The 17th WaterNet/WARFSA/GWP-SA Symposium. Theme: Sustainable Water supply and Sanitation, Gaborone International Convention Centre, Gaborone, Botswana, 26 – 28 October 2016.*
12. **JC Ngila** and RM Nthumbi (2016). Dechlorination of pesticides in water using Fe-Pd bimetallic nanoparticles on membrane composite, Applied Chemistry 2016 17-18 October 2016, Houston USA, **Invited Lecture**
13. **JC Ngila*** and PG Ndung'u (2016). B- & N-Doped CNT Functional Organic Solar Cells for Energy and Nanomaterials for Water Treatment. The Second Energy Future (EF) conference at the University of New South Wales, Sydney, Australia on the 4-6 July 2016.
14. Anthony Njuguna Matheri, Mohamed Belaid, Tumisang Seodigeng and **Catherine Jane Ngila (2015)**, “*The Kinetics of Biogas Rate from Cow dung and Grass clippings*”. Renewable energy and Water Conference organized by Centre for Renewable Energy and Water (CREW), Abstract and Poster Presentation 2015 (Published).
15. B. G. Fouda Mbanga, Paul P. Coetzee, **Jane C. Ngila**, Taddese W. Godeto (2016). Stable isotope ratio analysis for fingerprinting of Rooibos tea. Oral presentation. 6th Annual inter-faculty postgraduate symposium, University of Johannesburg: 14th October 2016.
16. B. G. Fouda Mbanga, Paul P. Coetzee, **Jane C. Ngila**, Taddese W. Godeto (2016). Stable isotope ratio analysis for fingerprinting of Rooibos tea. Oral presentation. South African Spectroscopy Society (SASS), Young Spectroscopy Symposium, Midrand, Johannesburg: 15th November 2016.
17. N Kumar, Vyom Parashar and **JC Ngila (2016)**, A Rapid Synthesis of Crystalline Pure Cubic Phase HFO2 Nanostructure at Low Temperature, International Conference on Environment, Materials and Green Technology, 24-25th November 2016, VUT Southern Gauteng Science and Technology Park, Sebokeng, SOUTH AFRICA.
18. Kgolofelo I Malatji, Bhekani Mbuli, Richard Moutloali, **J. Catherine Ngila (2016)**, Polyamide Thin Film Composite Membranes Modified with Zinc Oxide Nanoparticles and pHResponsive Acrylic Acid for Heavy Metals Removal from Wastewater, *International Conference on Environment, Materials and Green Technology*, 24-25th November 2016, VUT Southern Gauteng Science and Technology Park, Sebokeng, SOUTH AFRICA.
19. Lwazi Ndlwana, Keneiloe Sikhwivhilu, and **J. Catherine Ngila (2016)**. Low Fouling and pH-Responsive Membrane Based on Polyethersulfone-g-Polymethacrylic Acid Powder (PES-g-PMAA) with Benzoyl Peroxide and 2,2'-azo-bisIsobutyronitrite as Initiators, *International Conference on Environment, Materials and Green Technology*, 24-25th November 2016, VUT Southern Gauteng Science and Technology Park, Sebokeng, SOUTH AFRICA.
20. EFC Chaúque, LN Dlamini, CJ Greyling, JC Ngila. TiO₂ nanoparticles uniquely supported on functionalized electrospun polyacrylonitrile nanofibers for photodegradation of organic pollutants from dye effluents. The 17th Waternet Symposium on integrated water resources management: water security, sustainability and development in Eastern and Southern Africa, 25th – 28th October 2016, Gaborone International Convention Centre, Gaborone, Botswana. Oral presentation (*Award 1st Position, Best Student Presentation*).

21. Eutilério F.C. Chaúque, Langelihle N. Dlamini, Adedeji A. Adelodun, Corinne J. Greyling, **J. Catherine Ngila (2016)**, Synthesis and Characterization of TiO₂ Nanoparticles Supported on Functionalized Electrospun Polyacrylonitrile Nanofibers, *International Conference on Environment, Materials and Green Technology*, 24-25th November 2016, VUT Southern Gauteng Science and Technology Park, Sebokeng, SOUTH AFRICA.
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28. A.N. Matheri, M. Belaid, Seodigeng, **J.C. Ngila**, C. Mbohwa, E. Muzenda, F. Ntuli (2016) "Waste to energy technologies in south africa, *11th Southern Africa Energy Efficiency Convention (2016SAEEC)*, 8-9 November 2016 – Emperors Palace, Gauteng, South Africa.
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systems found in Gauteng Province. *Kenya Chemical Society 5-8 May 2015 held at University of Nairobi, Kenya: Applied Chemistry and Technology in Industry*

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51. M Thatyana, K Sikhwivhilu, P Nomngongo and **J C Ngila*** (2014). Polyethersulfone (PES) membrane embedded with Fe/Ni nanoparticles decorated-carbon nanotubes (CNTs) for degradation and adsorption of polychlorinated organic compounds in ground water and water stream. *International Symposium on macro- and Supramolecular Architects and Materials (MAM14): From Innovation to Commercialization*; Emperors Palace Hotel, Johannesburg RSA, 23-27 November 2014
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54. G.O. Bosire; T. Nkambule; B.V Kgarebe and **J.C Ngila*** (2014). Characterization and Model Simulations of Natural Organic Matter (NOM) Complexation in Industrial Cooling Water. 15thWaterNet/WARFSA/GWP-SA Symposia. The theme is: 'IWRM: An effective response to water-energy-food security challenges under changing climate. Lilongwe, Malawi from 29th – 31st October 2014.
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60. Bonani Seteni, JC Ngila, O. Mapazi, K.Sikhwivhilu, RM. Moutloali (2013). Dechlorination of 3, 3', 4, 4' -tetrachlorobiphenyl in water, by iron/nickel nanoparticles 14WaterNet/WARFSA/GWP-SA, Whitesands Hotel Dar-es-Salaam Tanzania, 30 October - 1 November 2013.
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129. **J. Catherine Ngila***, S. O. Yeboah and Y. C. Mitei (2003), Poly(3-methylthiophene) chemical sensor for determination of tocopherols (Vitamin E). *Transducer '03: The 12th International Conference on Solid-State Sensors, Actuators and Microsystems, Boston Marriott Copley Place, Boston, Massachusetts, USA June 8-12th, 2003 (Oral).*
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140. **J.C. Ngila*** and G.M. Sawula (2000), Voltammetric and AAS Detection of Chromium and Nickel in Wastewater from Nickel-Chrome Electroplating Plant: A case study in Rural Industrial & Innovation Center (RIIC), Kanye, Botswana, 2nd Intern Symp. on Electrolytic Processes - Randburg, South Africa, May 29-31, 2000 (**Oral**).
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143. **J. C. Ngila***, D.B Hibbert, P.W. Alexander, W.A. Dddamba, N. Silavwe, T. Msagati, K. Kelesitse, M. Kebinakgabo and G. Malope (2000), Metallic Wire Electrodes, Chemically and Biologically Modified Sensors in Static & Flow Systems for Applications in Environmental and Biological Samples, *1st Analytical Chemistry Symp. for Sustainable Development in Southern Africa* University of Botswana, Chemistry Department, 21-22 Feb, 2000 (**Oral**).
144. T.A.M. Msagati*, **J.C. Ngila** and M.M. Nindi (2000), Multi-Residue Analysis of Sulfa Drugs for Veterinary use by Differential Pulse and Square Wave Voltammetry at Glassy Carbon Electrode, *1st Analytical Chemistry Symposium for Sustainable Development in Southern Africa*". University of Botswana, Chemistry Department, 21-22 Feb 2000 (**Oral**).
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147. **J.C. Ngila***, Peter W. Alexander and D.Brynn Hibbert (1998), "Signal Amplification with Electrochemical Sensors in Environmental Monitoring: Multi-Sensor Systems, *Botswana Institute of Engineers, 4th Annual Conference*, Gaborone Sun Conference Centre, Gaborone, Botswana, 6-7th August, 1998 (**Oral**).
148. **J.C. Ngila***, Peter W. Alexander and D.Brynn Hibbert (1998), Aluminium wire multiple-sensor in semi-continuous flow determination of of Al³⁺ in Beverages, *7th International Chemistry Conference in Africa, 34th Convention of South African Chemical Institute*, University of Durban, South Africa, 6-10 July 1998 (**Oral**).
149. **J.C. Ngila*** (1996), Determination of Aluminium and Fluoride in Kenyan Environmental Samples using Aluminium Sensor , *Kenya Chemical Society*, Moi University, Kenya, 15th -20th September ,1996 (**Oral**).
150. **J.C. Ngila**, Peter W. Alexander* and D.Brynn Hibbert (1995), "Amplification of Multiple Nafion-Coated Wire Ion-Selective Electrodes for Flow Potentiometric Determination of Lead", *The Sixth Asian Chemical Congress and The Third Asian-Pacific Food Analysis Network Conference*, Manila, Philippines, May 22-25, 1995 (**Poster**).
151. **J.C. Ngila***, Peter W. Alexander and D.Brynn Hibbert (1994), "Coated Wire -Micro Electrode for Flow Analysis Based on NO₃⁻ -Doped Polypyrrole", *Trace Analysis and Environmental Monitoring Symposium*, University of Western Sydney, Nepean, Australia, December 8-9, 1994 (**Poster**).
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154. **J.C. Ngila***, Peter W. Alexander and D.Brynn Hibbert (1994), Multiple sensors in continuous flow determination of fluoride using aluminium wire electrode, *9th Australasian Electrochemistry Conference*, Univ. of Wollongong, Australia, February 6-10, 1994 (*Poster*).
155. **J.C. Ngila***, Peter W. Alexander and D.Brynn Hibbert, (1993), An aluminium wire sensor for indirect flow injection potentiometric determination of aluminium, 12th Australian Symposium on Analytical Chemistry and 3rd Environmental Chemistry, *Royal Australian Chemical Institute Conference*, Perth, Australia, September 29 -October 2, 1993 (*Poster*).

* *Corresponding Author in Publications and Conference Papers*

3.5 POSTGRADUATE STUDENTS- PROJECTS DIRECTED / SUPERVISED

3.5.1 Visiting /Postdoctoral Researchers at UKZN –From Sept 2008- Dec2009

1. Dr Jackson Kiptoo (**Jan-Dec 2009**)- Speciation of Selenium in Food. *Postdoctoral Fellow – from Jomo Kenyatta University of Agriculture and Technology (JKUAT)*.
2. Dr Joseph Owino (**Jan-April 2009-todate**)- Electrochemical methods for water treatment and filtration using nanotechnology. *Visiting Researcher: Collaboration with University of Stellenbosch Nanotechnology Project for Water Treatment*.
3. Dr Everlyne Songa (**Jan-June 2009**), Electrochemical biosensor for pesticide analysis. *Visiting Researcher from UWC; Organization for Prohibition of Chemical Weapons (UN-OPCW) Internship /Trainin Program*.

3.5.2 Previous Research Group at UKZN 2008-2012

Dr Stephen Musyoka (graduated with PhD in 2012)

Dr Joseph Kamau (graduated with PhD in 2012)

Dr John Mbugua (graduated with PhD in 2014)

Dr Isaac Mwangi (transferred to UJ in 2011 and graduated with PhD in 2014)

Dr Philiswa Nomngongo (transferred to UJ in 2011 and graduated with PhD in 2014)

Dr Banele Vatsha (graduate MSc in 2012 at UKZN, transferred to UJ in 2012 and graduated with PhD in 2015)

Dr Veresha Dukhi (graduated with MSc in 2013)

Dr Izzeldin Hamza (graduated with PhD in 2014)

Dr Richard Nthumbi (graduated with MSc in 2012)

3.5.3 Postdoctoral Fellows & Postgraduates Supervised at University of Johannesburg

3.5.3.1 Postdoctoral Fellows

1. Dr Geoffrey Bosire (**Jan 2016-2017**); Multivariate analysis and modeling studies of stability constants of calcium and magnesium-natural organic matter complexes in cooling water at Eskom. University of Johannesburg (UJ).
2. Dr John Mbugua (**Jan-June 2013**) -University of Johannesburg: Project Title: *Modeling of Flyash using PHREEQC.*
3. Dr Isaac Mwangi (**Jan-June 2013**) - University of Johannesburg: Project Title: *Adsorbents for removal of Inorganic and Organic Pollutants.*
4. Dr Joseph Kamau (**July 2011-June 2012**)- University of Johannesburg. Project Title: *Analytical techniques for inorganic and organic analyte extraction in cellulose, wastewater and soils*
5. Dr Stephen Musyoka (**March 2012-2015**) -University of Johannesburg. Project Title: *Electrospun cellulose nanofibers for removal of inorganic pollutants from contaminated water.*
6. Dr Monisola Ikhile (**July 2013-2017**) -University of Johannesburg: Project Title *Synthesis of Silver Ferrocenyl N-heterocyclic Carbene Complexes and their Biological Activities with Application in Water.*
7. Dr Nsika Dlamini (**Feb 2013-2014**) - University of Johannesburg: Project Title *Nanocomposite membranes doped with nano titanium oxide for degradation of dye in textile industrial wastewater.*
8. Dr Vyom Parashar (**Jan-Oct 2015**) - University of Johannesburg. Project Title *Surfactant free synthesis of metal oxide (Co and Ni) nanoparticles and applications to heat propagation in nanofluids.*
9. Dr Adedeji Adelodun (**Jan 2015-2016**). University of Johannesburg: Project Title *Fabrication of a selective photocatalyst for the conversion of CO₂ into pure fuel under natural light.*
10. Mr Bhekani Mbuli (**Jan 2015-2017**). University of Johannesburg): Project Title. *The modification of polyamide thin film composite membranes with catalytic nanoparticles to improve fouling resistance for water treatment.*
11. Dr Mphilisi Mahlambi (**Jan 2015-2016**). University of Johannesburg. Project Title *Preparation and characterisation of catalytic polymeric filtration membranes (PSF, PES, PVDF) modified with nanoparticles (Ag, TiO₂, Cu, Pt and Pd) for wastewater treatment.*
12. Dr Monisola Ikhile (**July 2014-2017**). Ferrocenyl complexes and their bioactivity towards Bacteria in Water.
13. Dr Adedeji Adelodun (**Feb 2015-Dec 2016**). Adsorbents for gas pollution remediation.
14. Dr Hussein Okoro (**July 2016-June 2017**) Monitoring and remediation of organic pollutants in water using adsorbents.

3.5.3.2 Postgraduate Students Currently being Supervised at University of Johannesburg

15. Vallerie Muckoya **PhD (Feb 2016-Jan 2019)**, Modelling and analytical methods for monitoring selected organic pollutants in Wastewater Treatment Plants in Gauteng Province. University of Johannesburg (UJ). **Main Supervisor.**
16. Sphelele Sosibo **PhD (July 2015-June 2018)**. Nanocomposite membranes with enhanced anti-biofouling properties for sustainable water treatment. University of Johannesburg (UJ). **Main Supervisor.**
17. Thulaganyo Molatji, **PhD Chemistry (Sept 2015-Aug 2018)**. Molecular based nano-sensor for diagnostic veterinary applications. University of Johannesburg (UJ). **Main- Supervisor.**
18. Tladi Gideon Mofokeng **PhD Chemistry (Feb 2015-Dec 2018)**. An investigation into the role of nanoclay and its localization on the blowability of polymer blends. University of Johannesburg (UJ). **Co-Supervisor.**
19. Cexton Musekiwa, **PhD (Feb 2015- 2018)**. Preparation and Characterization of PSF/PANI/ZnO/TiO₂{001} Ultrafiltration Membranes and Their Application in Water Treatment. University of Johannesburg (UJ). **Main Supervisor**
20. Ajay Bissessur **PhD (Jan 2012-2016)**. Studies on trans-esterification of fatty acids for production of high quality biodiesel by magnetic-impulse high-frequency cavitation processing and purification on activated carbon support. University of Johannesburg (UJ). **Main Supervisor**
21. Edwin Mmutlane, **PhD (Jan 2013-Nov2015)-** Synthesis and characterization of nanocomposite membranes for the removal of Organics in water. University of Johannesburg (UJ). **Co- Supervisor.**
22. Makgadiete Grace Mofokeng, **PhD (Jan2013-Nov2016)-** Investigating the effect of nanomaterials on thermal and mechanical properties, University of Johannesburg (UJ). **Main Supervisor.**

3.5.4 Graduated Students (Experimental Theses & Literature Review Reports)

Doctoral Students

23. Eric Mwangi Ngigi **PhD (July 2015-March 2019)**. Efficiency of modified nano-tungsten oxide on photodegradation of selected emerging organic pollutants and understanding their fate and behavior. University of Johannesburg (UJ). **Main Supervisor.**
24. Dr Odwa Mapazi- **PhD (March 2014-Oct 2018)**. Polydiacetylene-functionalised Electrospun Nanofibers for Rapid Colorimetric Identification and Detection of Pesticides and Related Compounds in Water. University of Johannesburg (UJ). **Main Supervisor**
25. Dr Anil Deshai **PhD Chemistry (March 2014- Dec 2017)**. Layered double hydroxide based nanohybrids as antifungal active delivery system for hair care applications. University of Johannesburg (UJ). **Co-Supervisor.**
26. Dr Denga Ramutshatsha (**PhD Feb 2015-Dec 2017**). Synthesis of novel polymer/ nanometal oxides (NMOs) composite nanofibers through electrospinning method for removal of salts from brine wastewater. University of Johannesburg (UJ). **Co- Supervisor**

27. Dr Lwazi Ndlwana- **PhD** (March 2014- Oct 2018). **PVDF and PES membrane-supported Fe/Pd nanoparticles for the degradation of selected chlorinated organics in water.** University of Johannesburg (UJ). **Main Supervisor.**
28. Dr Eseoghene Umukoro, **PhD Chemistry (September 2014- August 2017).** Synthesis, Characterization, Adsorption and Photocatalytic Studies of Novel Graphene/ Metal Oxide Polymer Nanocomposites for removal of selected inorganic and organic pollutants in water.
29. Dr Mogolodi Dimpe (**PhD Feb 2015-Dec 2017**). Sample preparation techniques using field flow fractions for speciation analysis of metals in water. University of Johannesburg (UJ). **Co-Supervisor.**
30. Dr Bonani Seteni, **PhD (September 2015-June 2018).** Synthesis of the structurally-integrated cathode material $[x\text{Li}_2\text{M}'\text{O}_3 \cdot (y)\text{LiMO}_2 \cdot (1-x-y)\text{LiMPO}_4$, (M=Mn, Ni, Fe). University of Johannesburg (UJ). **Main Supervisor.**
31. Dr Eutlerio Chauque **PhD (May 2014-2016)** Development of doped TiO_2 nanocomposites (x- TiO_2) immobilized on carbonized electrospun polyacrylonitrile nanofibres optimized using chelating agents for photocatalytic degradation of textile effluents. University of Johannesburg (UJ). **Main Supervisor**
32. Dr Martin Magu **PhD (Feb 2014-Dec 2016).** Modelling and analytical methods for monitoring selected organic pollutants in surface water and treated water systems in Gauteng Province. University of Johannesburg (UJ). **Co-Supervisor.**
33. Dr Mariah Onditi **PhD Chemistry (March 2014-2017).** Extraction and characterization of cactus biopolymers for fabrication of a water treatment device. University of Johannesburg (UJ). **Main Supervisor.**
34. Dr Richard Nthumbi **PhD (Jan 2013-2015);** Electrospun nanocomposite fibers for removal of inorganic, organic pollutants and bacteria from water. University of Johannesburg (UJ). **Main Supervisor.**
35. Dr Nomvano Mketi **PhD (July 2012-2016).** Analysis and extraction of coal impurities and determination of sulphur speciation. **PhD project,** University of Johannesburg (UJ). **Main Supervisor.**
36. Dr Heena Porshotam **PhD (Jan 2012-2015).** Studies on the use of Visual Minteq to determine the effect of natural organic matter on cooling water potentials. **PhD project,** University of Johannesburg (UJ). **Main Supervisor**
37. Dr Geoffrey Bosire **PhD (Jan 2013-2015);** Multivariate analysis and modeling studies of stability constants of calcium and magnesium-natural organic matter complexes in cooling water at Eskom. University of Johannesburg (UJ). **Main Supervisor**
38. Dr Banele Vatsha **PhD (Feb 2011-Nov 2013).** Novel strategies for synthesis and characterisation of membrane-based nanocomposites with reduced ultrafiltration (UF) membrane fouling and better wastewater disinfection. University of Johannesburg (UJ). **Main Supervisor.**
39. Dr Izzeldin Aldin Hamza **PhD-(Jan 2010-2013),** Adsorption studies of sugarcane biomass for removal of heavy metals in contaminated water and wastewaters, **PhD project,** (UKZN). **Co-Supervisor**

40. Dr Philiswa Nomngongo **PhD (March 2011-2013)**, Method development on sample preparation for trace metals in petroleum products prior to their determination using inductively coupled plasma- spectrometric techniques **PhD Project**, University of Johannesburg (UKZN). **Main Supervisor**
41. Dr Isaac W. Mwangi **PhD (Feb 2010-2012)**, Sampling techniques based on solid phase extraction with modified resins with chelating agents, **PhD project**, University of KwaZulu Natal (UKZN). **Main Supervisor**
42. Dr Monisola Ikhile, **PhD Project (2010-2012)** Synthesis of metal-ligand complexes, (UKZN) **Co-Supervisor**
43. Dr John Mbugua **PhD (Jan 2009-2012)** Modeling of Speciation of flyash waste by Sasol-Eskom. **PhD project** (UKZN). **Main Supervisor**
44. Dr Kessy Fidel, **PhD September 2008-2012**: Method development for analysis of organic components of dissolving pulp and profiling of metals in soils, wood and processing stages in cellulose production. (University of Johannesburg). **Co-supervisor**
45. Dr Joseph Kamau, **PhD September 2008-2011**: Method development for analysis of inorganic composition of dissolving pulp and profiling of metals in soils, wood and processing stages in cellulose production, **PhD project** (UKZN). **Main Supervisor**
46. Dr Stephen Musyoka **PhD (Nov 2008-2011)**; Water treatment using nanotechnology with zeolites and pulp residues. **PhD project** (UKZN). **Main Supervisor**
47. Dr Yulita C. Mitei. **PhD Thesis (2007)**; University of Botswana: Lipid and Phytochemical Studies and Method Development for Compositional Analysis of Selected Oil Bearing Plants, *Initially Main-Supervisor /later Co supervisor, after I resigned from UB*
48. Dr J.K. Kiptoo, **PhD Thesis (2006)**; University of Botswana: Speciation Studies of Trace Metals in Different Water Systems in Botswana and investigation of New Chelating Agents for Solid Phase Extraction and Enrichment Prior to Electrochemical and Spectrometric Techniques, **Main Supervisor**
49. Dr Jonas Frazer Mwatseteza, **PhD Literature Review (2006)**; University of Botswana: Fibre Optics Biosensors.
50. Dr Dikabo Mogopodi, **PhD Literature Review (2006)** University of Botswana: Electrochemical Studies of Phytochelators (PCs).

Masters Students

51. Inna Malatjie Kgolofelo. **MSc Nanoscience (Feb 2015-Dec 2016)**. Synthesis and characterisation of polyacrylic acid –zinc oxide-polyethersulfone (PAA/ZnO/PES) nanofiltration membrane for application in the removal of heavy metals from mine waste drainage water. University of Johannesburg (UJ). **Main Supervisor**.
52. Mr. LC Mahlalela (**MSc Chemistry Feb 2015-Dec 2016**). Fate and behavior of nano-TiO₂ in a simulated wastewater treatment of dye effluent. University of Johannesburg (UJ). **Co-Supervisor**.

53. Fouda Mbanga (**MSc Chemistry Feb 2015-Dec 2016**). The goal of this study is to authenticate rooibos tea based on stable isotope ratio data determined using ICP-MS. University of Johannesburg (UJ). **Co- Supervisor.**
54. David Vlotman (**MSc Chemistry (Feb 2016-Dec 2017)**). Hyperbranched polyethyleneimine (HPEI) polymer with a Fe/Pd bimetallic system embedded on a membrane for the removal of organic pollutants in water. University of Johannesburg (UJ). **Co-Supervisor.**
55. Veronica Wayayi (**MTech Chemistry July 2015-June 2017**). Method development for determination of organic compounds and their remediation using graphene-oxide nanomaterials. University of Johannesburg (UJ). **Co-Supervisor.**
56. S Simelane (**MSc Chemistry Feb 2016-Dec 2017**). Titanium doped catalyst for degradation of dye compounds tannery effluent. University of Johannesburg (UJ). **Co-Supervisor.**
57. M Thwala (**MSc Chemistry Feb 2016-Dec 2017**). Tungsten trioxide doped catalyst for degradation of dye compounds tannery effluent. University of Johannesburg (UJ). **Co-Supervisor.**
58. SN Lehutso (**MTech Chemistry Feb 2016-Dec 2017**). Molybdenum doped catalyst for degradation of dye compounds tannery effluent. University of Johannesburg (UJ). **Co-Supervisor.**
59. Luthando Nyaba–**MSc Chemistry 2014-2016 (with distinction)**. Dissertation Title: Speciation studies of trace metals in environmental samples, using spectrometric techniques. University of Johannesburg (UJ). **Co-Supervisor**
60. Joseph Mojalefa Matong- **MSc Chemistry 2014-2016**. Dissertation Title: Strategies of sample preparation for selected trace metal speciation and determination of pesticides in environmental samples. University of Johannesburg (UJ). **Co-Supervisor.**
61. Mandla Brian Chabalala (**MSc Nanoscience Feb 2014 –Dec 2015**). Synthesis and characterization of doped nanotitanium dioxide (TiO₂) immobilized on membranes and electrospinning of the synthesized TiO₂ on a polymer. University of Johannesburg (UJ). **Co-Supervisor.**
62. Joseph Orebotse Bothloko, **MSc Nano (Feb 2013-June 2015)**, Preparation characterization and properties of bionanohybrids based on biocompatible poly(glycolicacid)/polylactide blends and carbon nanotubes towards orthopaedic applications. University of Johannesburg (UJ). **Co- Supervisor.**
63. Maxwell Thatyana, **MSc Nano (Feb 2013-June 2015)**, Polyethersulfone membrane embedded with Fe/Ni nanoparticles decorated-CNTs for degradation of brominated organics in ground water and water streams. University of Johannesburg (UJ). **Main Supervisor**
64. Lindane Mbalenhle Mdlalose, **MTech (Feb 2012-June 2014)**, Utilization of coke and functionalized coke-based composite for uptake of heavy metals from wastewater. University of Johannesburg (UJ). **Co- Supervisor.**

65. Eutlerio Chauque **MSc (Feb 2012-Nov 2013)**. Monitoring of physicochemical parameters and behaviour of ZnO and metallic Ag nanoparticles in a simulated wastewater treatment plant. University of Johannesburg (UJ). **Main Supervisor**
66. Mogolodi Dimpe-**MSc (July 2012-June 2014)** Sample preparation techniques for total metal content in wastewater treatment plants in Gauteng province. University of Johannesburg (UJ). **Main Supervisor**
67. Ntombifuthi Kubheka- **MSc (July 2012-June 2014)** Speciation of metals in selected wastewater treatment plants in Gauteng. University of Johannesburg (UJ). **Main Supervisor**
68. Bhekisipho Mabhena **MTech (March 2012-March 2014)**. Studies of Constructed Wetlands for Metal Removal Efficiency in Wastewater: A case Study in Gauteng Province. University of Johannesburg (UJ). **Main Supervisor.**
69. Thulaganyo Molatji, **MSc Nanoscience (Feb 2012- April 2015)**. A multi-walled carbon nanotube screen printed electrode modified with recombinant protein PbrR for detection of lead. University of Johannesburg (UJ). **Co- Supervisor.**
70. Odwa Mapazi- **MSc-NanoScience (Feb 2012-Nov 2013)**. Functionalized electrospun nanofibers impregnated with nanoparticles for degradation of chlorinated compounds
71. Lwazi Ndlwana- **MSc- NanoScience (Feb 2012-Nov 2013)**. Dechlorination of chloro-compounds using Fe/Pd bimetallic nanoparticles immobilized on microfiltration membranes. University of Johannesburg (UJ). **Main Supervisor.**
72. Bonani Seteni **MTech (March 2012-Nov 2013)**. Modification of Commercial Micro-Filtration Polyvinylidene fluoride Membrane with Nanoparticles for Degradation of Trihalomethanes and Phthalates in Water. University of Johannesburg (UJ). **Main Supervisor.**
73. Miss Veresha Dukhi: **MSc Studies of transformer oil degradation under low and high voltage, MSc Project (Jan 2010-2011); (UKZN). Main Supervisor**
74. Racheal Robb: The influence of physicochemical reaction parameters on the synthesis of MWCNTS for use as catalyst supports: **MSc Project 2009-2012. (UKZN) Co-Supervisor**
75. Richard Nthumbi (**Jan 2009-2011**); Analytical method development in nanotechniques for water treatment. **MSc project**, University of KwaZulu Natal (UKZN). **Main Supervisor**
76. Philiswa Nomngongo **MSc (March 2009-2011)**, Electrochemical biosensor for halogenated flame retardants. **MSc Project**, University of KwaZulu Natal (UKZN). **Main Supervisor**
77. Banele Vatsha **MSc (Feb 2009-2011)**. NMR and XRD characterization of Cellulose I and II. **MSc Project**, University of KwaZulu Natal (UKZN). **Co-supervisor**
78. Kate Kotlhao **M.Sc Dissertation (2006)**; University of Botswana: Chemical Analysis of Secondary Treated Effluent from Gaborone Secondary Treatment ponds using FAAS. **Main Supervisor**
79. Munkombwe Muchindu, **M.Sc Dissertation (2006)**; University of Botswana Determination of Phenolic Compounds using Electrochemical Biosensors. **Main Supervisor**

80. B.B.M. Nkoane, **MPhil/PhD Literature Review (2004)**; University of Botswana: A Review of Liquid Chromatography-Nuclear Magnetic Resonance Spectroscopy (LC-NMR).
81. J.N. Kamau, **M.Sc Thesis (2004)**; Jomo Kenyatta University of Agriculture & Technology Science: Effects of seasonal redox variation on metal speciation; implications on water quality, fish stocks and faunal assemblages at Lake Naivasha, Kenya (*Co-Supervisor*).
82. Inonge Tembwe, **M.Phil Thesis (2004)**; Univ Botswana Metal: Thiolate-Complexes as Sensors for Monitoring SO₂ Gas Pollutants. **Main Supervisor**
83. Z. Raditladi, **M.Phil Thesis (2003)**; University of Botswana: Optimization of Crystal Growth Parameters for Industrial Production of Soda Ash using XRD / ESEM / TOC Analyzer /Ion Chrom: A Case Study at Sua Pan Soda Ash Plant, Botswana, **Main Supervisor**
84. T.A. Msagati, **M.Phil Literature Review (1999)** University of Botswana, Enzyme-Modified Electrodes Using Polymer Membranes, Electrochemical Biosensors.

3.5.5 Honours Research Projects

85. Prince Gumbi, Method development on electrochemical biosensor for pesticide residues (**July 2010**).
86. Taskeen Ahmad (**Dec 2008**): Mass spectrometric and biosensor analysis of pesticides.
87. Thashini Chetty (**Dec 2007**), Speciation Studies of Aluminium in Ligand Solutions Boiled in Cookware using Differential Pulse Voltammetry with Pyrocatechol Violet and Solid Phase Extraction Prior to ICP-OES Detection
88. M. Moses (**2006**), Use of Oxidized Polyvinyl Alcohol as an Ion-exchange Resin for Metal Ions. CHE452 Project, Chemistry, University of Botswana, UB.
89. B.J. Mokoka (**2006**), Use of Functionalized Polyvinyl Chloride as an Ion-exchange Resin for Metal Ions. CHE452 Project , Chemistry UB.
90. P. Segwagwa (**2004**), Development of Potentiometric Sensor for Determination of Phenolic Compounds. C414 Project, Chemistry UB.
91. P.G. Matshediso (**2004**), Development of Amperometric Sensor for Determination of Phenolic Compounds. C414 Project, Chemistry UB
92. P. Dinake (**2004**), Electrochemical Study of Metal Complexes with Ferrocenyl Ligands. C416 Single Major- Project, Chemistry UB.
93. S.G. Olesitse (**2003**), Differential Pulse Voltammetric Determination of Speciation of Heavy Metals with Organic Ligands. C414 Project, Chemistry UB.
94. M. Muchindu (**2002**), A Modelling method for Determination of Lead Speciation with Glucose. C414 Project, Chemistry UB.
95. P. Kolanyane, (**2002**), Methods of Speciation Studies for Determination of Stability Constants of Metal-Ligand Complexes, C314 Literature Review Project, Chemistry, UB

96. K. Karihindi (2002), Modelling of Heavy Metal Speciation in Carbohydrate-Rich Wastewater from Brewery Effluent, C416 Project, Chemistry UB.
97. O Rakgabo, (2002), Modelling of Heavy Metals in Inorganic Ligands-Rich Wastewater from Brewery Effluent, C414 Project), Chemistry UB
98. G. Sirang (2001), Determination of Phenols in Wastewater using Mushroom-Tyrosinase Biosensor with Chronoamperometric Detector, C414 Project, Chemistry UB.
99. O. Raditloko (2001), Voltammetric Determination of Tocopherols in Local Seed Oils, C416 Project, Chemistry UB.
100. J.E.R. Thabano (2001), Studies of Chemical Speciation of Dissolved Cu, Zn, Cr, and Pb in Industrial Waste: A case Study of Kgalagadi Breweries, C416 Project, Chemistry UB.
101. M. Kebinakgabo (2000), Studies of Difurylmethane-maleic anhydride Copolymer Coated Wire Electrode as a Potentiometric Sensor for Cations in Flow Injection analysis, C414 Project, Chemistry UB.
102. G. Malope (2000), Studies of Polythiophene Copolymers with Nafion and PVC as Membranes in Ion-Selective Electrodes for Potentiometric Determination of Anions", C414 Project, Chemistry UB
103. K. Keleitsitse (2000), Studies of Electrodes based on Electropolymerized Polypyrrole Modified with Macrocylic Compounds, for the Potentiometric Determination of Cations, C414 Project, Chemistry UB.
104. K. Double (1999), Investigation of Electrochemical Properties of Polythiophenes as Membranes for Application in Chloride- and Nitrate- Ion Selective Electrodes, C414 Project, Chemistry UB.
105. P. Tema (1999), Polypyrrole Based Ion-Selective Electrodes Modified with Long-Chain Alkyl and Aryl sulphonates, C414 Project, Chemistry UB

3.6 HOSTING OF RESEARCH VISITS

106. Ms Mariah Onditi (Jan 2014-todate) PhD Student in Chemistry, *Sponsored by Organization for Women in Science for the Developing World (OWSD) Trieste, Italy* Sandwich Programme at the University of Johannesburg since February 2014. Project Title: Extraction and characterization of cactus biopolymers for fabrication of a water treatment device.
107. Ms Emmanuelle Roques (May –Sept 2015, Masters Student) in Chemical engineering *National Polytechnic Institute of Chemical and Industrial Engineering, Toulouse, France.* Project Title: Application of Nanomaterials for filtration of Treated and Raw Wastewater from Johannesburg Water Wastewater Treatment Plant. Research Internship at the University of Johannesburg in South Africa.
108. Ms Karin Verbard (June –September 2014, Masters student) in Chemical engineering *National Polytechnic Institute of Chemical and Industrial Engineering, Toulouse, France.* Project Title: Analysis of Treated and Raw Wastewater from Johannesburg Water Wastewater Treatment Plant. Research Internship at the University of Johannesburg in South Africa.

109. Mrs Oluremi Olabanji (**Jan-April 2009**): Elemental Characterization of the blood and hair of mentally-ill patients **PhD Project Obafemi Awolowo University** Ile-Ife, Osun State, Nigeria, *Organization for Prohibition of Chemical Weapons (OPCW) Internship/ Training, Program.*
110. Douglas O. Onyancha ((June-August **2005**), Biosorption of Chromium from Tannery Wastewaters by *Spirogyra condensata* and *Rhizoclonium hieroglyphicum*, MSc Project, Egerton University, Kenya. *Sponsored by Southern and East Africa Network of Analytical Chemists (SEANAC).*
111. Isaac W. Mwangi (June-August **2005**), Determination and Copper Speciation in Kamiti River Flowing along Coffee farms in Kiambu, MSc Project, Kenyatta University, Kenya, *Sponsored by Southern and East Africa Network of Analytical Chemists (SEANAC).*
112. Joseph N Kamau, (September **2003**-February **2004**) Determination of Heavy Metals in Lake Naivasha water, **MSc Project**, Jomo Kenyatta University of Science and Technology (JKUAT), Kenya, *Sponsored by International Foundation of Sciences, IFS Sweden.*
113. Hlophe Mbhuti (Feb **2004**-Feb **2005**), Electrochemical Reduction of Nitrosoamines on the Dropping Mercury Electrode (DME), PhD Project, *North West University, Mafeking Campus, South Africa:*

3.7 JOURNAL REVIEW

3.7.1 Professional Journals Reviewer

- i. Analyst
- ii. Analytical Letters
- iii. Discovery and Innovations
- iv. Botswana Journal of Technology
- v. Bulletin of Chemical Society of Ethiopia
- vi. Bioresource Technology
- vii. Chemical engineering journal
- viii. Desalination and water treatment
- ix. Electrochimica Acta
- x. Environmental Monitoring and Assessment
- xi. Environmental Science & Pollution Research
- xii. Food and Chemical Toxicology
- xiii. Fresenius Environmental Bulletin
- xiv. Industrial & Engineering Chemistry Research
- xv. International Journal of Environmental Analytical Chemistry
- xvi. Journal of Hazardous Material
- xvii. Journal of Applied Science & Environmental Management
- xviii. Journal of Physics and Chemistry of the Earth
- xix. Journal of Toxicology and Environmental Chemistry
- xx. Research Journal of Chemistry and Environment
- xxi. Sensors and Actuators
- xxii. South Africa Journal of Chemistry
- xxiii. South Africa Journal of Science
- xxiv. Spectroscopy letters
- xxv. Talanta

- xxvi. Water Research
xxvii. Water South Africa

3.7.2 Selected Reviewed Journal Articles to-date

1. Manuscript Number: EMAS-D-12-10863 Ozone facilitated de-chlorination of 2-chloroethanol and impact of organic solvents and activated charcoal; *Environmental Monitoring and Assessment*, **2015**
2. Disinfection property of ZnO nanofluids - role of H₂O₂ *Water Research*
Effects of nanosized titanium dioxide on the physicochemical stability of activated sludge flocs by thermodynamic approach and Kelvin probe force microscopy, **2015**
3. Simultaneously preconcentration of Cd, Cu, Ni and Zn with ammonium lauryl sulphate coated alumina with 1, 5-diphenylthiocarbonyl with online FAAS. *Arabian Journal of Chemistry* **2015**
4. Synthesis, spectroscopic characterisation and antimicrobial activities of some mixed drug metal(II) complexes of Sulfamethoxazole and Paracetamol. *IBIMA Publishing*. **2014**
5. Lead (II) removal from aqueous solution by chitosan flake grafted with citric acid via crosslinking with glutaraldehyde, *Bioresource Technology* **2013**
6. Adsorption Characteristics of Non-Cross-linked and Cross-linked Chitosan Immobilized on Sand in the Removal of Copper (II) from Aqueous Solution. *Desalination* **2013**
7. Preparation and characterization of modified cellulose for adsorption of Cd (II), Hg (II) and acid fuchsin from aqueous solutions. *Industrial & Engineering Chemistry Research*. **2012**
8. Determination of Some Heavy Metals Food and Environmental Samples by Flame Atomic Absorption Spectrometry after Co-precipitation, *Food and Chemical Toxicology*, **2011**.
9. Preparation and adsorption properties of dialdehyde 8-aminoquinoline starch, *Journal of Applied Polymer Science* **2011**
10. Modification of glassy carbon electrode by a simple, inexpensive and fast method using an ionic liquid based on imidazolium as working electrode in electrochemical determination of some biological compounds, *South Africa Journal of Chemistry* **2011**.
11. "Effect of Physical Modification on Mangifera Indica (Mango) Waste Biomass for Cd (II) and Pb (II) Mitigation, *Toxicological and Environmental Chemistry* **2011**.
12. Simultaneous determination of Cu(II), Ni(II) and Zn(II) by peroxyoxalate chemiluminescence using partial least squares calibration, *Analyst*, **July 2010**
13. Monitoring Of Nickel in Biological Samples and Plant Materials by Differential Pulse Polarography using Chloroform Extraction Procedure with Newly Synthesized Analytical Reagent 4-(2-Hydroxy Phenyl Ethaminodiol),-1.3-Diol, *Toxicology and Environmental Chemistry* **May 2010**
14. Electrocoagulation method for colour removal in tea effluent: a case study of Chemomi tea factory in Rift valley, Kenya. *Bulletin of Chemical Society of Ethiopia*. **March 2009**

15. Application of a poly(2,2'-dithiodianiline) (PDTDA) coated screen-printed carbon electrode in inorganic mercury determination, *Electrochimica Acta* **31 Dec 08**
16. Application of New Resin Functionalized by Brilliant Green for Spectrophotometric Determination of Mercury in Environmental Samples, *Journal of Hazardous Materials* **15 Dec 2008**
17. Bioaccumulation and biosorption of Chrome-VI by different Fungal Species; *Journal of Hazardous Materials* **27 Oct 2008**
18. Application of New Resin Functionalized by Brilliant Green for Spectrophotometric Determination of Mercury in Environmental Samples Second Review for International *Journal of Environmental Analytical Chemistry*- **22 Oct 2008.**
19. Application of New Resin Functionalized by Brilliant Green for Spectrophotometric Determination of Mercury in Environmental Samples, *J Environmental Analytical Chemistry*, **July 2008.**
20. Biosorption of Cd²⁺, Cu²⁺, Ni²⁺, Pb²⁺ and Zn²⁺ ions from aqueous solutions by pretreated biomass of brown algae. *J Hazardous Materials, JHM*, **May 2008.**
21. Biosorption of aluminum on Pseudomonas aeruginosa loaded on Chromosorb 106 prior to its graphite furnace atomic absorption spectrometric determination, *J Hazardous Materials, JHM*, **Oct 2007**
21. Thermoanalytical Characterization, Stable Isotope and Paleoenvironmental Controls of Kaolinite from Two Genetic Sources, *Fresenius Environmental Bulletin*, **Jan 2007**
22. Modified Activated Carbons by Different Ligands for the solid phase extraction of Copper and Lead, *Spectroscopy Letters*, **Jan 2007**
23. Method Development for the Determination of Phenols in Water Samples by using Supported Liquid Membrane Extraction probe and Liquid Chromatography with Photodiode Array detection; *South Africa Journal of Chemistry* **Dec 2006**
24. Separation/preconcentration of silver(I) and lead(II) in environmental samples on cellulose nitrate membrane filter prior to their flame atomic absorption spectrometric determinations *Journal of Hazardous Materials, JHM*, **Oct/Nov 2006..**
25. Quantitative analysis of GB with fluorinated polymer coated QCM, *South Africa Journal of Chemistry*, **10th Aug 2006**
26. Solid Phase Extraction Method for selective determination of Pb(II) using 4-(4-Methoxybenzylideneimine) Thiophenole, *Journal of Hazardous Materials*, **11th Aug 2006.**
27. Biomass Fuel From Chamomile Waste Flowers, *International Journal of Biochemiphysics*: **8th Jan 2006**
28. Studies of Pollution Indicators in Effluents from Selected Beverage Plants in Bangladesh *Journal of Applied Science & Environmental Management*: Review Ref No. MS #JEO-535. Manuscript, **6th Nov 2005**

- 29 Determination of selected metal ion concentrations in the Okavango-Maunachira-Khwai channels of the Okavango Delta. *Journal: Botswana Notes and Records* (BNR, 27th April 2005).
30. Studies in the Thermal Degradation of Poly(vinyl chloride): Stabilizing Effects of Derivatives of Khaya Seed Oil", *The African Academy of Sciences Discovery and Innovation* .Manuscript-RefB1/MSS/1793, 19th Dec, 2003.
31. Theory & Applications of Mass Spectrometry; (ii) Ekosse G. Basic principles and practices of using X-ray diffraction equipment, Torto & Nindi: *Publications of University of Botswana Faculty of Science-Shared Facilities*, Nov 2003.
32. Studies on Solvent Extraction Behaviour of Cobalt (II) with Nitrobenzoylpyrazolone, *Botswana Journal of Technology*, Manuscript (Ref. 2000-13) Article: 30th Aug 2001.
33. Efficiency of Polyaniline Redox Process in Mono- and Dibasic Acid Media, *Discovery and Innovation*, The African Academy of Sciences - Manuscript (Ref: B1 /MSS / 1657): 5th July 2001

3.8 REVIEWER: NRF PROPOSALS FOR NRF & WRC FUNDING / NRF RATING/ PROMOTIONS

Prof Ngila has served as a Panel Chair and Reviewer for South Africa National Research Foundation (NRF), and Water Research Commission Proposals for various Grant Applications, as well applications for NRF Academic Rating for Researchers and also for MSc and PhD Bursary Awards. She has acted as External Reviewer of Academic Promotions for University of Kwazulu Natal, National university of Lesotho, Addis Ababa University, University of Botswana, University of Western cape and University of Ibadan Nigeria.

3.9 FUNDING: AWARDS /GRANTS

1. Mathematical Modelling For Mass Balance of Trace Metals and Organic Compounds in Wastewater Treatment Plants in Gauteng Province, South Africa. **Water Research Commission (WRC) (April 2016-30 March 2019)**. Proposal No. 1004332: **ZAR 1 million**
2. Functionalized electrospun fibres containing immobilized nanoparticles in nanocomposites sorbents for the removal of metals, organic pollutants and bacteria: **Water Research Commission (WRC) (April 2014, ZAR 0.65 million)**.
3. Field Flow Fractionation /Liquid -Gas Chromatography/ Inductively Coupled Plasma-Mass Spectrometer. **National Research Foundation (NRF) Grant for Infrastructure Funding Instruments National Equipment Programme/ National Nanotechnology Equipment Programme (NEP/NNEP)**. April 2014, **ZAR 10 million**).
4. Multivariate Analysis and Studies of Stability Constants of Complexes of Natural Organic Matter (NOM) with Metals in Cooling Water; and Innovative Techniques for the Determination of Impurities in Coal: **ESKOM (South Africa Power Corporation) Jan 2013-Dec 2015: R 0.3 million**

5. Method development on sample preparation for trace metals in petroleum products prior to their determination using inductively coupled plasma- spectrometric techniques. **SASOL (South Africa Oil)-Jan 2011-Dec 2013: R 0.45 million**
6. Monitoring of physicochemical parameters of ZnO and metallic Ag nanoparticles and their behaviour in a simulated wastewater treatment plant. **Council for Scientific and Industrial Research (CSIR): Jan 2012-Dec 2013: R 0.3 million**
7. Improved Analytical Strategies for Monitoring Heavy Metals Removal in Selected Wastewater Treatment Works and Constructed Wetlands in Gauteng and KwaZuluNatal: **Water Research Commission (WRC) (Jan 2012-30 March 2015) Project No. K5/2116:R 0.85 million**
8. **J C Ngila** and James Wesley-Smith (**June 2010**). Field Emission Gun Scanning Electron Microscope- **10 million Rand; NRF-NNEP RISP (7 Million R) and UKZN (3 Million R)**.
9. **JC Ngila**: Organization for Prohibition of Chemical Weapons, the Hague, The Netherlands, **2008-todate (1.2 million R)** for Research projects and Internships for visiting researchers.
10. C A Buckley, **J Catherine Ngila** and others (**May 2008**), Constructed Wetlands for Near-Natural Purification of Contaminated Ground Waters and Effluents: Organisation of Scientific Events and Expertise Development, **NRF-KISC Key International Scientific Cooperation. R0.25 million**
11. **J.C Ngila (2007-2009)** Amperometric flow injection determination of heavy metals speciation with complexing reagents, *Competitive Research Grant*, **UKZN Research Office. R 0.2 million**
12. E. Iwuoha*; **J. C. Ngila**, H. Alemu (**2003-2006**), Spectroelectrochemical Impedance Modelling and Application of Self-Assembled Amperometric Laccase Biosensor Alarm Devices for Priority Phenolic Pollutants (**Third World Network of Scientific Organizations, TWNSO**, October 2003-Sept 2006. **Euro 50,000**
13. N. Torto* and **J.C. Ngila (2005)**, **Southern and Eastern Africa Network for Analytical Chemists (SEANAC)** funded by International Program in Chemical Sciences (**IPCS**), a sub-program of, the International Science Programme (ISP) at Uppsala University, Sweden. 22nd August 2005. **Pula 0.1 million.**
14. **J.C. Ngila***, W.L Masamba, N. Silavwe and H. Nyongesa (**2004**), Comparative studies of metal speciation patterns in freshwater and wastewater systems in Botswana, Research and Development Office (**RDO**), **Large Project**, University of Botswana, June 2004. **Pula 0.1million**
15. N. Torto*, **J.C. Ngila**, P. Huntsman-Mapila, L. Chimuka, J. Darkwa, (**2003**), Characterisation, *Monitoring and Remedial Studies for Inorganic Pollutants* Research and Development Office (**RDO**), **Large Project**, University of Botswana, September 2003. **Pula 0.1 million**
16. N. Torto, **J.C. Ngila***, G. M. Sawula, P. Huntsman-Mapila, J. Darkwa (**2002**) Characterisation, *Monitoring and Remedial Studies for Inorganic Pollutants* Research and Development Office (**RDO**), **Large Project**, University of Botswana, March 2002. **Pula 0.1 million**
17. **J.C. Ngila***, G.M. Sawula, N. Silavwe and R. Mabbs (**2001**). Research grant by Faculty of Science Research Publications Committee (FoSRPC): "*Analytical and Modelling Methods in*

Assessing Metal Content and Speciation in Gaborone and Surrounding Areas" (29 May 2001).
Pula 0.05 million

18. **J.C. Ngila*** and W.A. Ddamba, (1999), Research grant by Faculty of Science Research Publications Committee (FoSRPC)-, *Studies of difurylmethane-maleic anhydride copolymer as an electrochemical sensor for cations in Flow Injection and Ion Chromatographic analysis* University of Botswana (UB), (19th September 1999). **Pula 0.05 million**
- 19 **J.C. Ngila*** and W.A. Ddamba, (1998), *Development of Potentiometric Sensors -Metallic and Coated Wire Electrodes and their Application in Environmental Samples* Research Grant, Faculty of Science Research Publications Committee (FoSRPC)-UB, 9th September 1998.
20. **J C Ngila** and Others (1997): *Field hand-held flow injection pollution monitors for inorganic substances in surface water systems*; **Vice Chancellor Award, Kenyatta University. KSh 0.5million**
21. **J C Ngila** and KWO Aduda (1996), *Online-portable pollution monitors for water systems in Kenya*: Awarded by **Kenya Industrial Research and Development Institute (KIRDI)**, Nairobi Kenya. **KSh 0.2 million**

3.10 CONSULTANCIES/ TECHNICAL REPORTS - UNIVERSITY OF BOTSWANA

1. **J. Catherine Ngila** (November 2005): Compositional Analysis of Used Oil **Scientific Report** submitted to Energy & Engineering Department, Rural Industrial Innovation Centre (RIIC), Kanye
2. **J. Catherine Ngila** and Georges Ekosse (May 2004): Chemical and Mineralogical Tests- Kalahari Sands & Calcretes, **Scientific Report** submitted to Botswana technology Centre (BOTECH), Gaborone.
3. **J. Catherine Ngila** (April 2004): Physico-chemical Analysis of Water Samples from Land-Fill Borehole Water, **Scientific Report** submitted to GEO EXPLO (Pty) LTD, Gaborone.
4. **J. Catherine Ngila** (November 2003): Analysis of Solid Scale Deposits in Storage Tank, Boiler and Borehole Water from Pandamatenga, **Scientific Report** submitted to Water Flow (Pty) Ltd, Gaborone.
5. **J. Catherine Ngila** (October 2003): Physico-Chemical Analysis of Water Samples from Boseja, Maun Project, MGDII, **Scientific Report** submitted to Water Resource Consultants (Pty) Ltd, Gaborone.
6. **J. Catherine Ngila** (December 2002): Physico-Chemical Analysis of Borehole Water Samples from Selebi Phikwe, **Scientific Report** submitted to Water Surveys (Pty) Ltd., Gaborone.
7. **J. Catherine Ngila** (June 2002): Analysis of Paracetamol Oral Suspension to Identify, Assay and Quantify, **Scientific Report** submitted to Parma Pharmacy (Pty) Ltd, Gaborone.
8. Gerald M. Sawula , **J. Catherine Ngila** (March 2000): Monitoring of waste discharge from a nickel-chrome electroplating plant, Research and Development Department, **Scientific Report** submitted to Rural Industrial Innovation Centre (RIIC), Kanye.

3.11 PROPOSALS PRESENTED

- 1 **J.C. Ngila***, F.W. Maloba and K.O. Aduda (Feb, **1996**), On-Line Monitoring of Environmental Pollution goes Automatic with Hand- Held Electrochemical Sensors- *Collaboration with Kenya Industrial Research and development Institute (KIRDI)*, Kenya .
- 2 **J. C. Ngila***, K.O. Aduda, K. Thiong'o and J. Odote (April, **1996**). Gas Sensors for Atmospheric Pollution:- A Case Study for Automobile Emissions in Kenya- *Collaboration with KIRDI*.
- 3 **J. C. Ngila***, J. Odote and K.O. Aduda (July, **1996**). Development of Semiconductors using Locally (Kenya) available Materials such as Sand - *Collaboration with KIRDI*.
- 4 W. Msungu*, K.O. Aduda and **J. C. Ngila** (Oct, **1996**). Resource center for creation of a demand-supply data bank on the sources, efficient charcoal production and consumption methods including other environmentally friendly alternative sources of energy available in the Kenyan and International markets - *Collaboration with KIRDI* .
- 5 **J. C. Ngila***, J. Murungi and K. O. Aduda (March, **1997**). Locally Developed Trapping Materials for the Control and Management of Automobile Emission Pollutants- A Global Environmental Research Proposal for Research Institute of Innovative Technology for the Earth- *Collaboration with KIRDI*.
- 6 K.O. Aduda*, J. C. Ngila and W. Msungu (May, **1997**). Alternative Sources of Energy for Small Scale Entrepreneurship Development in Towns and Rural Areas *Collaboration with KIRDI*.
- 7 M. Mutuvi*, **J. C. Ngila** and K.O. Aduda and T. Thoruwa (June, **1997**). Solar Drying Technology as a Means of Controlling Post-Harvest Losses, Disease & Pest Management in Crop Production- *Proposal submitted to Kenya Agricultural Research Institute / Agricultural Research Funding (KARI / ARF)*, Kenya.
- 8 **J.C. Ngila***, K.O. Aduda and J. Murungi (August, **1997**). Analysis of Sludge for Heavy Metals from Oil Storage Tanks & Pipelines - *Collaboration with KIRDI*.
- 9 F. M. Embeiwa*, **J. C. Ngila** and M. Mutuvi (Sept, **1997**). Mobile "University Lectures on Science & Technology, to High School Students *Collaboration KU- Submitted to UNESCO*, Nairobi.
- 10 K.O. Aduda*, J. O. Kaane, W. Msungu and **J. C. Ngila** (Oct, **1997**). Micro-Computer Based Traffic Signal Controller for Fast Developing Urban Centers - Environmental implications: The Kenyan Case- *Collaboration with KIRDI*.
- 11 M. Mutuvi*, **J. C. Ngila**, T. Thoruwa and K.O. Aduda (Nov, **1997**). An Evaluative Survey of The Management of Women Groups - Food Drying by Solar Systems in Kitui District- *Collaboration with KU* staff.
12. **J.C. Ngila** (**1997**). Kenyatta University Vice Chancellor Research Grant- Field flow measurements for detection of inorganic and organic pollutants- October 1997.
- 13 **J.C. Ngila*** and W A.A. Ddamba (**2001**), University of Botswana Grant- BWP 30,000 Studies of dufurylmethane-maleic anhydride as ion-responsive membrane for the determination of mono-, di- and tri-valent cations.

- 14 Z. Raditladi, BV Kgarebe and JC Ngila (2003). Grant-BWP 60,000 for MPhil Project for Z Raditladi by Sua Pan Soda Ash Plant, Botswana. Project title- Optimization of Crystal Growth Parameters for Industrial Production of Soda Ash using Analytical Techniques.
- 15 E. Iwuoha*; **J. C. Ngila**, H. Alemu (2003), TWNSO- Third World Network of Scientific Organizations grant ZAR 200,000. Spectroelectrochemical Impedance Modelling and Application of Self-Assembled Amperometric Laccase Biosensor Alarm Devices for Priority Phenolic Pollutants.
- 16 C A Buckley, **J Catherine Ngila** (May 2008). NRF-Key International Scientific Cooperation. Constructed Wetlands for Near-Natural Purification of Contaminated Ground Waters and Effluents: Organisation of Scientific Events and Expertise Development
- 17 JN Kamau, A Gachanja and **JC Ngila** (2004). SEANAC (Southern & East Africa Network of Analytical Chemists) -grant for hosting students from the Region. BWP 50,000. Effects of seasonal redox variation on metal speciation; implications on water quality, fish stocks and faunal assemblages at Lake Naivasha.
- 18 **J.C. Ngila** (2005). University of Botswana Research Grant (June 2005)- BWP 100,000 Electrochemical Sensors for detection of inorganic ions in water.
- 19 **J.C Ngila** (2007) University of Kwazulu Natal Competitive Research Grants- ZAR 70,000. Amperometric flow injection determination of heavy metals speciation with complexing reagents.
- 20 **J.C. Ngila** (2008). SAPPI-SAICCOR Grant- ZAR 500,000. South Africa Forest & Forestry Products. Analysis of metals and inorganic in Eucalyptus, in dissolving pulp, cellulose and cellulose viscose materials, paper, lignin and bitumen for road construction.
- 21 I O Olabanji, E A Oluyemi, **J C Ngila** and TAM Msagati (2010). OPCW -Organization for Prohibition of Chemical Weapons- A study of the implications of organophosphorus agrochemical residues poisoning in patients with mental disorders (scholarship for visiting student M IO Olabanji at UKZN).
- 22 **J.C. Ngila** (2010). OPCW -Organization for Prohibition of Chemical Weapons- ZAR 100,000. Sampling and Sample Preparation Strategies for Characterization, Monitoring and Remedial Studies of Inorganic and Organic Pollutants
- 23 **J.C. Ngila** (2010). South Africa National Research Foundation (NRF) grant for high resolution scanning electron microscopy equipment (ZAR 10 million in 2010).
- 24 **J.C. Ngila** (2011). ESKOM grant -ZAR 100,000. Modeling studies for the determination of natural organic matter effects on cooling water (CW) precipitation potentials, using Visual MINTEQ
- 25 **J.C. Ngila** (2011). SASOL grant -ZAR 795,000. Method development for sample preparation/clean-up prior to determination of trace metals in petroleum products and petrochemical organic matrices using inductively coupled plasma-mass spectrometry (ICP-MS).
- 26 **J.C. Ngila** (2012). Water Research Commission grant (ZAR 850,000)- Improved Analytical Strategies for Monitoring Heavy Metals Removal in Selected Wastewater Treatment Works and Constructed Wetlands in Gauteng and KwaZulu-Natal Provinces.
- 27 **J.C. Ngila** (2012). University of Johannesburg research grant -ZAR 350,000. Sample preparation techniques for total metal content in wastewater treatment plants in Gauteng province.

- 28 **J.C. Ngila** (2012). Council for Scientific and Industrial Research (CSIR) grant -ZAR 500,000. Monitoring of physicochemical parameters and behaviour of ZnO and metallic Ag nanoparticles in a simulated wastewater treatment plant.
- 29 **J.C. Ngila** (2013). University of Johannesburg research grant ZAR 150,000. Electrospun nanocomposite fibers for removal of halogenated compounds and other selected pollutants from contaminated from water.
- 30 **J.C. Ngila** (2013) ESKOM grant- ZAR 150,000. Modeling of Ca /Mg precipitation potential parameters with NOM and competitive complexation in Cooling Water.
- 31 **J.C. Ngila** (2014) Organization for Women Scientists in the Developing World (OWSD) grant ZAR 500,000. Extraction and characterization of cactus polymers for fabrication of a water treatment device.
- 32 **J.C. Ngila** (2014) National Research Foundation SA NRF (2014) grant of ZAR 10 million. Flow field fractionation/ gas & liquid chromatography inductively coupled plasma mass spectrometer (FFF/GC/LC/ICP-MS).
- 33 **J.C. Ngila** (2015). Water Research Commission, WRC -contract No. K5/2386)-Grant ZAR 350,000 through CPUT Cape Peninsula University of Technology, Department of Technology Station in Clothing and Textiles. Preparation of electrospun nanofibers coated with catalysts immobilized using chelating agents for the remediation of pollutants from wastewater.
- 34 **J.C. Ngila** (2014) National Research Foundation SA NRF grant -ZAR 10 million. Flow field fractionation/ gas & liquid chromatography inductively coupled plasma mass spectrometer (FFF/GC/LC/ICP-MS).
- 35 **J.C. Ngila** (2014) ESKOM (2014) grant ZAR 120,000. Studies on Complexation and Model Simulations of Natural Organic Matter (NOM) in Industrial Cooling water.
- 36 **J.C. Ngila** (2014) National Research Foundation SA NRF) grant -ZAR 10 million. Flow field fractionation/ gas & liquid chromatography inductively coupled plasma mass spectrometer (FFF/GC/LC/ICP-MS).
- 37 **J.C. Ngila** (2014) Water Research Commission WRC grant- ZAR 650,000. Functionalized electrospun fibers containing immobilized nanoparticles in nanocomposite sorbents for the removal of metals, organic pollutants and bacteria from surface water.
- 38 **J.C. Ngila** (2015) Water Research Commission grant -ZAR 950,000. Fate and behaviour of nano-particles in simulated textile wastewater treatment plants
- 39 **J.C. Ngila** (2016) Research Foundation SA NRF grant for Rated Researchers ZAR 40,000. Multivariate analysis and speciation studies on metal-complexes of natural organic matter in cooling water utilized by power generation systems.
- 40 **J.C. Ngila** (2016) Water Research Commission WRC grant- ZAR 1 million. Mathematical modelling for trace metals and organic compounds in wastewater treatment plants in Gauteng province.

4.0 UNIVERSITY POSITIONS HELD & SUBJECTS TAUGHT

4.1 INSTITUTIONS

2020 Feb- Jan 2022	Deputy Vice Chancellor for Academic Affairs, Riara University
2017 April- Feb 2020	Deputy Director, Morendat Institute of Oil & Gas (MIOG) under Kenya Pipeline Company Ltd (KPC)
2013 April- 2016: June;	Head of Applied Chemistry, University Johannesburg (UJ)
2011 April- 2013: June;	Deputy Head, Research Department of Applied Chemistry, UJ
2011 (April):	Full Professor of Analytical /Environmental Chemistry, UJ
2006 (July)-March 2011;	Senior Lecturer University KwaZulu Natal (UKZN)
2006 (April-July)	Senior Lecturer, University of Botswana (UB)
1998 Jan-2006June	Lecturer, University of Botswana (UB)
1995 Oct-1997 Dec	Lecturer, Kenyatta University, KU, Nairobi Kenya
1991-1995 Sept	Tutor /Demonstrator, UNSW, Sydney, Australia
1987-1990	Tutor / Demonstrator /Graduate Assistant at KU
1986- 1987	Graduate Teacher in Maths and Chemistry (Form 1-6), Kitui Boys High School.
1985-1986	Graduate Trainee Teacher, Maths and Chemistry at St Angelas Girls Sec School, Kitui, Kenya
1982 -1983	Untrained Teacher, Kyondoni Girls Sec Sch, Maths, Chemistry & Biology, Kitui, Kenya

4.1.1 RIARA UNIVERSITY

Mainly management and administration. Address to staff and students.

4.1.2 MORENDAT INSTITUTE OF OIL & GAS

Administration & coordinating training & workshops

4.1.3 UNIVERSITY OF JOHANNESBURG

Year III: CET3AMP: Materials and Processing Science (Water Management)

Year III: CET2BAT: Analytical Chemistry 3- Analytical Techniques.

MSc in Nanoscience: Analytical Techniques/ Nanocomposite Membranes for Water Filtration

4.1.4 UNIVERSITY OF KWAZULU NATAL (2006 July-March 2011)

Year I: General Chemistry tutorials

Year II: APCH211-Environmental Chemistry

Year II: APC212 Industrial Chemistry

Year III: APCH332- Environmental Analysis and APCH432 Integrated Projects

Honours **CHEM 741**: Electroanalytical Chemistry

CHEM781-Special Topics in Analytical Chemistry (Biosensor techniques)

4.1.5 UNIVERSITY OF BOTSWANA (1998- June 2006)

Undergraduate Courses: BSc/BEd Sci

Year I: CHE101/102: General Chemistry, Tutorials and Labs

Year II:

CHE211 Introduction to Analytical Chemistry (classical analysis, spectrophotometric methods, electroanalytical techniques and Statistical Treatment of Analytical Data). CHE213-Analytical Laboratory

Year III:

CHE311/CHE312 Electroanalytical Chemistry: Potentiometric analysis using Ion Selective Electrodes.

CHE352 Literature Review Projects

Year IV:

CHE411 Electroanalytical chemistry: Potentiometry, Voltammetry & Polarography, Statistics & Chemometrics for Analytical Chemistry I, Instrumental Analytical Techniques (Atomic absorption spectrometry, Inductively coupled plasma-optical emission spectrometry, Ultraviolet Spectrophotometry, Fourier transform infrared spectrophotometry). Separation techniques; CHE452 Research Projects

Postgraduate Courses

CHE611 Analytical Spectroscopy

CHE612 Separation Techniques: Capillary Electrophoresis & Column chromatography techniques

CHE613 Potentiometric & Voltammetric techniques

CHE614 Process Instrumental Flow Analyzers (Flow injection analysis FIA, continuous flow analysis CFA, segmented flow analysis SFA)

CHE615 Advanced Electroanalytical Chemistry II: Pulsed Voltammetry

CHE617 Statistics & Chemometrics for Analytical Chemistry II

CHE618 Special Topics in Analytical Chemistry (Chemical Sensors & Biosensors)

CHE752 Supervision of MSc Dissertations: Projects in Analytical Chemistry

CHE801 MPhil Literature Review

CHE852 MPhil Thesis Projects in Analytical Chemistry

CHE903 PhD Literature Review

CHE952 PhD Thesis Projects in Analytical Chemistry

4.1.6 KENYATTA UNIVERSITY, NAIROBI, KENYA (1995-97)

Undergraduate B.Sc/BEd Science

Year I	SCH 103	Statistical data and classical analysis
Year II	SCH 203	Introduction to Chromatography & Separation Techniques
	SCH 211	Theory of Spectroscopic Methods I
Year III	SCH 303	Chromatography & Separation Techniques
Year IV	SCH 403	Instrumental analysis
	SCH 411	Theory of spectroscopic methods II

Postgraduate

MSc	SCH 500	Analytical Techniques I
	SCH 501	Advanced Instrumental analysis

4.1.7 UNIVERSITY OF NEW SOUTH WALES, SYDNEY, AUSTRALIA (1991-1995)

PhD Student /Tutor/ Research Assistant

Duties included:

- i. Demonstration in Year I General Chemistry
- ii. Demonstrator of 2nd Year Analytical Lab CHEM231D
- iii. Part-time Tutor of Year I Chemistry students-private consultations
- iv. Research Assistant Prof Peter Alexander- assisting Chinese students in the laboratory

4.2 EXTERNAL EXAMINER / INTERNAL EXAMINER

4.2.1 *External Examiner of Theory Modules*

1. University of Western Cape –**Nov 2010-Todate:** -Analytical Chemistry Module.
10. Fort Hare June 2010; Honours Material Science Module
3. University of Witwatersrand, Nov 2008- todate:–Honours electrochemistry module.
22. University of Zululand, May 2008: - General Chemistry Year I module

4.2.2 *Examiner of Postgraduate Dissertation and Theses*

1. **MSc Dissertation**, Determination of quinolones in bovine kidney using hollow fiber supported liquid membrane followed by liquid chromatography tandem mass spectrometry, University of South Africa (UNISA); **September 2017.**
2. **MSc Dissertation** Development of a colorimetric sensor using silver nanoparticles mediated from *Moringa oleifera* for Cu and Cr detection in wastewater, **University of Botswana, December 2016.**
3. Determination of triclosan and triclocarban in wastewater treatment plants and tap water within gauteng province using liquid chromatography–tandem mass spectrometry and gas chromatography mass spectrometry- **Tshwane University of Technology, May 2016.**
4. **PhD Thesis:** Title: Studies on the enhancement of sensitivity in SOI-MEMS piezoelectric accelerometer for low frequency applications. Department of engineering chemistry college of engineering, **Andhra University, Pradesh, India. October 2015**
5. **MSc Dissertation:** Synthesis, Characterisation and Comparative evaluation of photocatalytic and antimicrobial activity of Ag₂O and TiO₂ for water treatment. Department of Chemistry, Faculty of Science and Agriculture, **University of Fort Hare. 2 May 2015.**
6. **MSc Dissertation:** Analysis of skin-lightening preparations. **University of Kwazulu Natal, June 2015**
7. Dissertation Title: *The determination of organochlorinated pesticides and polychlorinated biphenyls in sediment, soil and water of the Msunduzi River, Kwazulu-Natal, South Africa,* **University of Kwazulu Natal, February 2015**
8. **MSc Dissertation**, Title: Interaction Studies of Chiral Non-Steroidal Anti-Inflammatory Drugs with HSA Proteins using Capillary Electrophoresis Frontal Analysis and Electrokinetic *Chromatography*. Department of Chemistry, Faculty of Applied Sciences, **Durban University of Technology. January 2015**
9. **PhD Thesis**, Title: Preparation of Stable Dispersions of Uniform Silver, Nanoparticles: Synthesis with Optical Characterization and Their Applications (Bio-Evaluation &

Fluorescence). Department of engineering chemistry, College of engineering, **Andhra University, Visakhapatnam, Andhra Pradesh, India, September, 2014.**

10. **PhD Thesis**, Title: Modified Gold-Coated Magnetic Nanoparticles: Development of an Amperometric 'Calibration-Free' Metal-Ion Sensor. **University of New South Wales. June 2014**
11. **MSc Dissertation**: Title: Corrosive Sulphur in Transformers **MSc University of Kwazulu Natal. (July 2013)**
12. MSc. Dissertation Title: An electrospun nanofiber colorimetric probe for detection of alkaline phosphatase for diagnosis of liver toxicity. **Rhodes University. January 2014**
13. Verification of the concept of simultaneous multi-element electrothermal atomic absorption spectrometry. **TSHWANE UNIVERSITY OF TECHNOLOGY. MSc Nov 2012**
14. Development of a visible light active, photo-catalytic, and antimicrobial nanocomposite of titanium dioxide and silicon dioxide for water treatment. **MSc University of Fort Hare (Feb 2012).**
15. Impedimetric and electrode kinetic dynamics of DNA aptamer nanobiosensors for estrogenic endocrine disruptors. **PhD Thesis, University of Western Cape (Jan 2012). External Examiner**
16. Electrochemical responses of novel preferentially oriented platinum (100) nanoalloys for ammonia and hydrazine catalysis. **PhD Thesis, University of Western Cape (Jan 2012). External Examiner**
17. Electrochemical and optical modulation of selenide and telluride ternary alloy quantum dots genosensors. **PhD Thesis, University of Western Cape (Jan 2012). External Examiner**
18. Biodegradable polymer composites: synthesis, properties and application in water purification, **MSc Dissertation (Feb 2011). University of Johannesburg. External Examiner**
19. Electrochemical Ochratoxin A immunosensors based on polyaniline nanocomposites templated with amine- and sulphate-functionalised polystyrene latex beads, **PhD Thesis, University of Western Cape (Jan 2011). External Examiner**
20. Ozone initiated oxidation of organic pollutants, m-xylene and 2-chloroethanol: **MSc Dec 2010, University of Kwazulu Natal. Internal Examiner**
21. Application of Catalysts and Nanomaterials in the design of an Electrochemical sensor for Ochratoxin A: **MSc Dissertation May 2010, Rhodes University, External Examiner**
22. Ozone initiated oxidation of organic pollutants, m-xylene and 2-chloroethanol, **MSc Dissertation, January 2010, University of Kwazulu Natal. Internal Examiner**
23. Synthesis of bioethanol from lignocellulosic materials with grass and waste paper as biomass, **MSc Dissertation (January/Feb 2010), University of Fort Hare. External Examiner**
24. Preparation, characterization and evaluation of wood-clay nanocomposites for use as biofuels. **MSc Dissertation (January/Feb 2010), University of Fort Hare. External Examiner**

25. Sample preparation in environmental monitoring: a case study of the Okavango Delta, Botswana. **PhD Thesis (Dec 2009), Rhodes University, External Examiner**
26. Method development based on molecularly imprinted polymers for the selective extraction of organic compounds in complex aqueous matrices. **MSc Thesis June 2009, University of Witwatersrand, External Examiner**
27. Synthesis and electrochemistry of octapentylthio phthalocyanine complexes of manganese, titanium and vanadium, **MSc Thesis March 2009, Rhodes University, External Examiner**
28. Assessment of Heavy Metals Contamination of roadside Soil Profiles and Plants Across Thika-Nairobi Highway, Kenya. **MSc Thesis March 2009, Kenyatta University, Kenya External Examiner.**
29. Sedimentation and Chemical Processes on the Lower Mkuze Floodplain: Implications for Wetland Structure and Function, **PhD Thesis UKZN (Feb 2009). Internal Examiner.**
29. Composite Poly(dimethoxyaniline) Electrochemical Nanobiosensor for Glufosinate and Glyphosate. PhD Thesis, University of Western Cape (**Jan 2009**). **External Examiner.**
30. Harmonization of Internal Quality Tasks in Analytical Laboratories MTech degree (**August 2008**) at **Durban University of Technology. External Examiner**
31. Determination of Endocrine-Disrupting Compounds in Water and Sediments from the Jukskei River Catchment Area **DTech** degree (**July 2008**) at Tshwane University of Technology. **External Examiner**
32. Environmental levels of manganese in Tshwane metropolitan. **D Tech (Dec 2007)**; Tshwane University of Technology. **External Examiner**
33. The fate of non-limiting solutes and the processes of solute retention in the uMkhuze wetland system in Kwazulu Natal, PhD (**Dec 2007**); University of Kwazulu Natal. **Internal Examiner**
34. Elemental distribution in selected edible nuts and the impact of oils quality on the chemical characteristics of Macadamia Nuts, **MSc (Dec 2007)**; University of Kwazulu Natal. **Internal Examiner**
35. The Atmospheric Impact of Sasol Synfuels Operations on Bordering Residential Development, **MTech (July 2007)**; Tshwane University of Technology. **External Examiner**
36. Electrochemical Biosensors for Pesticide Analysis, Karen Jones, **MPhil Thesis** in University of West Indies, **Oct /Nov 2006. External Examiner**
37. Microdialysis Sampling and SPE Strategies with Spectrometric Detection Towards Multielement Speciation in Indigofera melanadenia and Tephrosia longipes Plants growing in Cu-Ni Mining Areas in Botswana, PhD in Analytical Chemistry, University of Botswana, **July 2006. Internal Examiner**
38. Synthesis and Electrochemical characterization of Conducting Polyaniline-Fly Ash Matrix Composites. **MSc Thesis** in University of Western Cape, January/**February 2006. External Examiner**

39. Humic Acid Mediated Microdialysis sampling of Metal Ions in Soils and Plants from Mineralized Area, **MPhil Thesis** Chemistry UB, **July 2005. Internal Examiner**
- 40 Analysis of heavy metals in coffee plants in Ruiru, Kenya: **MSc Thesis** at Kenyatta University, Kenya **September 1995, Internal Examiner**

5.0 ADMINISTRATION

5.1 RIARA UNIVERSITY (RU)

Deputy Vice Chancellor (Academic & Linkages) Riara University

The duties include:

- Formulating and implementing policies, regulations, standards and guidelines that create a framework for academic excellence, as well as the effective management, implementation and evaluation of University programmes and activities.
- Overall direction and organization of activities in Finance and Administration within the University.
- Ensuring business development geared towards the sustainability and advancement of the University, as demanded by a dynamic, ambitious institution.
- Developing, implementing and monitoring quality assurance and risk mitigation systems that will enable RU meet and maintain the highest standards in teaching, learning, scholarly output, and operational efficiency.
- Developing strategies to attract, retain, empower, and motivate qualified and experienced staff, in line with the desired University culture.
- Planning, coordinating and evaluating the optimal use of instructional facilities and resources of the University in liaison with Deans and Heads of Departments / Sections.
- Ensuring administrative and regulatory compliance of the University; and any other duties allocated by Vice Chancellor.

5.2. MORENDAT INSTITUTE OF OIL & GAS

April 201- Feb 2020 Kenya Pipeline Company Lt, Ministry of Energy & Petroleum

Deputy Director of the Morendat Institute of Oil & Gas under the Kenya Pipeline Company. In charge of Training, Academic & Linkages.

5.3 UNIVERSITY OF JOHANNESBURG

2013 -2016: Head of Department of Applied Chemistry

- i) Member of University Senate
- ii) Special Member of UJ Executive Leadership Group
- iii) Senate Ad Hoc Committee Task Team on Access for Students & Staff
- iv) Member of Dean's Committee of Heads of Departments
- v) Faculty Representative to Higher Degrees Committee
- vi) National Science Week
- vii) Proposal Reviews for Postgraduate Students
- viii) NRF Reviewer of Application for rating

2012-2013

- i) June 2012-March 2013: Deputy Head of Department –Research & Development, Department Applied Chemistry
- ii) Faculty Representative to Higher Degrees Committee
- ii) National Science Week
- iii) Proposal Reviews for Postgraduate students
- iv) NRF Reviewer of Application for rating
- v) WRC Reviewer of Proposals

5.4 UNIVERSITY OF KWAZULU NATAL (August 2006-todate)

1. **Committee Chair (Jan 2010-March 2011)**, Research and Publications Committee, School of Chemistry Westville and Pietermaritzburg Campuses.
2. **Coordinator**; Honours program (**Jan-Dec 2008**): this involves the following; registration of students, orientation, drawing schedules of and chairing seminar presentations, laboratory projects, scheduling of dates for tests and examination in various modules, etc.
3. **Coordinating** the Teaching /Laboratory for APCH332 Environmental Analysis module. This course involved 3 lecturers- I have coordinated the different components from the three lecturers. Involved corrections of the laboratory manual contents contributed by the other two staff.
4. **Faculty Member** of Promotion Committee
5. **Coordinating** the Curriculum Review of Honours program. The courses are CHE741-Analytical Chemistry and CHE781 Special Topics in Analytical Chemistry. The duties included chairing meetings on discussions on honours matters in the School.
6. **Coordinator** of Analytical Chemistry research group: This involved chairing of meetings held in the division, coordinating proposal writing on environmental / analytical thematic areas; soliciting for funding both internally (UKZN Research Office) and External (Companies e.g CSIR, SASOL, ESKOM, MINTEK, DST, etc.)
7. **Organization of Workshops:**
Workshop by NRF-South Africa/ Germany/ Columbia, School of Chemistry, University of Kwazulu-Natal, Westville Campus, Durban. Constructed Wetlands for Wastewater Treatment 20-21 Nov 2008.
8. **Coordinated Activities involving the School of Chemistry UKZN and External Funding Organizations:**
 - a) **OPCW**- International Organization Explores Co-Operation With School of Chemistry, WEDNESDAY, 10 September 2008 | Volume 2 | Issue # 17
UKZN Online News. <http://www.ukzn.ac.za/publications/online.asp>
 - b) **Colombia & Germany**: Constructed Wetlands for Wastewater Treatment published on. Monday, 08 December 2008 | Volume 2 | Issue #23;
<http://www.ukzn.ac.za/UKZNonline/V2/23/issue23.htm>
 - c) **Coordinating Partnerships for International Research & Education (PIRE)** –United States America /South Africa (USA/SA) collaborative proposal, September 2009.

5.5 UNIVERSITY OF BOTSWANA (1998-2006 July)

5.5.1 Chemistry Department

1. **Coordinator** of Analytical Chemistry Section from **May 2005-June 2006**.
2. **Coordinator** of Chemistry Hand-Book-Preparation (**2005-6**).
3. **Board Secretary** –Chemistry Departmental: **2000 / 2001**.
4. **Member** of Departmental Health and Laboratory Safety Committee **1999- 2006**
5. **Representative** to University Calendar Submissions- Publications Office, UB: (**1999-2006**).

5.5.2 Faculty of Science

1. **Member** of User-Group - Faculty of Science Shared Facility: Inductively Coupled Plasma-Mass Spectrometry **ICP-MS) Unit (2003-2006)**.
2. **Representative** of Chemistry Department to Faculty of Science Shared Facility: X-Ray Diffraction **(XRD) Unit (2002-2006**
3. **Member** of User-Group - Faculty of Science Shared Facility: Gas- & Liquid Mass Spectrometry **(GC/LC-MS) Unit (2002-2006)**.
4. **Representative** of Chemistry Department to Faculty of Science Shared Facility: Electron Microscopy **(EMU) Unit (2002-2006)**.
5. **Member** of Organizing Committee for Women in Science and Technology (WIST) Conference: “Women's participation in Science and Technology, Positioning Southern Africa for Equity”, UB-USAID-Regional Centre for Southern Africa, Gaborone, July 2-4, **2002**.
6. **Member** of Organizing Committee of Faculty of Science Female Academic Staff charged with visiting Secondary Schools to give Motivational Talks: January-February **2002**.
7. **Member** of Education Democracy and Development Initiative -Women in Science (EDDI-WIS) Group -Promoting Science, Math, Engineering & Technology and Agriculture (SMETA):**2001-2003**.
8. **Member** of Committee for EDDI-WIS Clinics for Secondary School Girls - held at UB: August **2001**.
9. **Representative** of Faculty of Science to Sexual Harassment Policy Committee: **2000-2006**.
10. **Member**- Gender Policy Programme Committee **1999-2006**.

5.6 KENYATTA UNIVERSITY NAIROBI KENYA (1995-97)

1. **Representative** of Kenyatta University to National Research & Industrial Development Committee (NIREDCO). (**1996/97**)
2. **Representative** of Chemistry Department to Faculty of Science Journal Editorial Board Committee (*Kenyatta Science Journal*) (**1996/97**).
3. **Coordinator**, Analytical Chemistry Division
4. **Secretary** - Research Collaboration & Proposal Writing Departmental Committee (**1995-97**).
5. **Member** of Chemistry Departmental Seminar Presentations Committee (**1995-97**).
6. **Member** of Postgraduate Studies & Advisory Departmental Committee (**1996/97**).
7. **Member** of the Departmental Committee for Appraisal, Disciplinary & Promotion of Support Staff (**1996/97**).
8. **Secretary** of the Chemistry Departmental Committee for Staff Social Welfare (**1996/97**).
9. **Member** of Laboratory Equipment Safety & Management Departmental Committee (**1996/97**).

10. **Representative** of Faculty of Science to University Chancellor Graduation Speech Writing Committee (Oct **1996**).
11. **Chairperson** of Old Girls Association of St. Angelas Secondary School (Kitui, Kenya) (**1995-97**).

6. PROFESSIONAL SOCIETIES AND COMMUNITY ACTIVITIES

6.1 Membership of Societies

1. Advisory Board- Water South Africa Journal: **2014-todate**
2. SEANAC (Southern and East Africa Network of Analytical Chemists) Founding Member and Active Member, **2000-2010**
3. Third World Women in Science (recently changed name to Organization of Women Scientists in the Developing World, OWSD) (**Feb 1999-todate**)
4. American Chemical Society (**1994-1996; Jan 2010**)
5. Royal Chemical Society (**1993-96: Jan 2010**)
6. Royal Australian Chemical Institute (**1993-1997: Jan 2010**)
7. Kenya Chemical Society (**1995**);
8. Germany Academic Exchange- Alumni DAAD (**1989**)
9. Australia Universities Alumni, Kenya/South Africa (**1996**)
10. Botswana Chemical Society (**2002**)
11. South Africa Conventional Institute (**Oct 2006-todate**)
12. Africa Women in Science & Education (AWSE) (**August 2010**)
13. African Institute of Science (ASI) (**December 2010-todate**)

6.2 Organizing Professional Conferences / Symposia and Courses

1. Conference Chair hosting the **NRF Newton UK-South Africa Bilateral forum for Africa, India and the UK (2015)** The 3rd Conference on Emerging Frontiers for Sustainable Water (3-5 August 2015), University of Johannesburg, South Africa.
2. Member of International Advisory Committee (**June 2014**) **International Conference for Pure and Applied Chemistry, Mauritius:** theme “Crystallising Ideas: The Role of Chemistry” -the International Year of Crystallography.
3. Member of Local Organizing Committee, **13th Waternet WARFSA**, Birchwood Hotel, Johannesburg, South Africa. **30 October -1 Nov 2012**.
4. **Executive Committee Member (2010)**, SEANAC2012 Conference in Maputo, Mozambique July 2012.
5. **Coordinator: Workshop for NRF KISC South Africa, Germany & Colombia:** Constructed Wetlands for Wastewater Treatment published in UKZN News on Monday, 08 December 2008 | Volume 2 | Issue #23; <http://www.ukzn.ac.za/UKZNOnline/V2/23/issue23.htm>
6. **Secretary (2007)**, SEANAC Conference in Gaborone, Botswana July 2007.
7. **Hosting Research Visits (2005):** Organizing Research Exchange Visits for students and researchers sponsored by International Programme in Chemical Sciences, IPICS (Uppsala, Sweden) through Southern and East Africa Network of Analytical Chemists (**SEANAC**) in May-July 2005.

8. **Resource Person (2005)** in SIDA funded workshop entitled, *Baseline monitoring of pollutants in the Okavango Delta* workshop, held Maun Lodge, Botswana, February 28 – March 1, 2005.
9. **Secretariat Member (2004)**, Organizing the Network of Users of Scientific equipment in Southern and East Africa (NUSESA) Regional Laboratory Management Workshop held in Gaborone, Botswana, 29th Nov – 3rd Dec 2004.
10. **Secretariat (2004)**, Organizing NUSESA / SEANAC Workshop held on 5th – 7th October 2004 in Chemistry Department, University of Botswana.. Resource person - gave half-day lecture on Data handling a Reporting.
11. **Secretary (2003)** Local Organizing Committee- SEANAC, Inaugural Conference, Grand Palm Hotel, July 7-10, 2003.
12. **Founding member (2002)**: Engineered the formation of links between SEANAC and Sigma Xi and coordinated the Sigma Xi sponsored activities Dec2002-Dec 2003.
13. **Member (2003)** Network of Users of Scientific equipment in Southern and East Africa (NUSESA).
14. **Programme Officer (2002)** SEANAC in charge of Publicity in the Southern and Eastern African Network of Analytical Chemists -Region (2002).
15. **Secretary (2002)** Organizing Committee for Analytical Chemistry Workshop: SEANAC, Hotel Crystal Palace, Gaborone, 25th-27th February 2002.
16. **Committee Member (2000)**, Harnessing of Science and Technology for Development in Botswana (BOHASTED) June28-July 1, 2000.
17. **Coordinator/Resource Person (1999)** Electroanalytical Course, Summer School in Chemistry Department UB: 6th-10th December 1999.
18. **Coordinator/Resource Person (1999)**, Winter School in Chemistry Department UB: Electroanalytical Course 2nd -13th August 1999.

6.3 Professional Services /Community Engagement:

1. **National Science Week (August 2010)**: Lecture to *Selected Top-Achieving Grade 10-11 Students* from Different High Schools in KwaZulu Natal Province –held at Science and Technology Education Centre, University of Kwa Zulu Natal, Westville Campus, Durban South Africa **4th August 2010**: Title of Lecture:- *Why is Analytical Chemistry Important in a Modern and Healthy Society?*
2. **Volunteer Consultant**: Environmental Pollution activity (2006)-offered assistance to Lutheran Hospital at Ramotswa, Botswana in investigating the causes of Gas-leakage in the Hospital's Theatre in January 2006.
3. **Member Committee (2000-2006)**, participating in activities of BOTHASTED (Botswana Trust for Harnessing of Science and Technology). Main objective of the association is to Promote and support Community Activities concerning the appreciation of science & technology as vehicles for Botswana' socio-economic and culture development.
4. **Member Committee (2005)** Fund-Raising Activities at Christ the King Catholic Cathedral, Gaborone, 2005-2006)
5. **Member (2000-2004)** EDDI-WIS Committee for Promoting community activities involving participation of Secondary School Girls in Science & Technology areas under the EDDI-Women in Science Project (2000-2004).
6. **Mentor Job Shadowing (2003)** for 3rd Year Female Science student (P. Goitseman)- Title of the Project, *Analysis of Metals in Environmental Samples*. The objective of the job shadowing

exercise was to act as a mentor to girls to pursue science careers: 13th October- to 3rd November 2003.

7. **Member (2000)** Organizing Committee for community activities involving setting up Science & Technology clinics during school holidays for secondary school girls under the EDDI-Women in Science Project (2000-2006).

7.0 FULL LIST OF REFEREES

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8.0 SIGNATURE AND DATE



Signature ____Prof JC Ngila_____ **Date:** 15th February 2020