

SUMMER | DECEMBER 2024

# SCIENCE

@UJ

NEWSLETTER OF THE  
FACULTY OF SCIENCE

UNIVERSITY OF JOHANNESBURG

LEADING SCIENTISTS, INNOVATIVE TECHNOLOGISTS

## THIS ISSUE FEATURES:

A special memorial tribute is on pages 3-5.

We highlight the fantastic achievements of our Faculty, Staff and Students on pages 5-8.

This final feature reflects the Faculty of Science's final quarter highlights and snippets.



FACULTY OF SCIENCE





## A Message from the Executive Dean, Prof Annah Moteetee

As 2024 draws to a close, I want to take a moment to reflect on the extraordinary accomplishments within our Faculty. This year has been marked by remarkable achievements, both from our dedicated staff and talented students, and I am immensely proud of each milestone we have reached together.

Our Faculty continues to excel across academics, research, and community engagement. Our students have demonstrated exceptional commitment, achieving accolades in national and international competitions and making meaningful contributions to their fields of study. Their hard work and creativity have set new benchmarks, from innovative research projects to community-driven initiatives.

To our academic and administrative staff, your dedication and passion for excellence have not gone unnoticed. Your contributions to teaching, mentoring, and research are the foundation of our success. Together, we have navigated challenges and celebrated victories, ensuring our Faculty remains a beacon of knowledge and innovation.

As we prepare to celebrate the festive season, I thank everyone for their contributions and hard work. I encourage you to take this well-deserved break to rest, rejuvenate, and spend time with loved ones. Let us return in 2025 with renewed energy and commitment, ready to reach even greater heights.

Wishing you all a joyful holiday season and a prosperous New Year!

COMPILED BY THE  
FACULTY MARKETING OFFICE  
EDITED BY PROFESSOR ANNAH  
MOTEETEE

FACULTY MARKETER:  
CLERISSA DAVIDS  
EMAIL: CLERISSAB@UJ.AC.ZA  
WEBSITE: FACULTY OF SCIENCE,  
UNIVERSITY OF JOHANNESBURG  
(uj.ac.za)

GRAPHIC DESIGN AND LAYOUT:  
UJ GRAPHIC DESIGN STUDIO

 <https://www.uj.ac.za/faculties/science/>

 UJ Faculty of Science  @science\_uj

 @UJScience



## In Memoriam: Honoring the Legacy of a Posthumous PhD Recipient

We pay tribute to **Dr. Sinikiwe Ncube**, a dedicated PhD student posthumously awarded her doctorate. Her remarkable contributions to Geology and unwavering commitment to academic excellence inspire us all. In a heartfelt interview, her supervisor, Dr Trishya Owen-Smith, reflects on Sinikiwe's journey, sharing insights about her research, resilience, and the lasting impact she leaves on our academic community.

### 1. What was her PhD research focus, and why was it significant in their field of study?

"Sinikiwe's research focused on the Kameel Complex, which is a layered mafic intrusion in the Northern Cape that is not exposed on surface and as such was previously unstudied. Her samples came from a deep borehole that was drilled to explore for mineral resources in the region. Some layered mafic intrusions host valuable metals – like the Bushveld Complex, which is the world's premier source of platinum. To be able to determine if the Kameel Complex had any economic potential, we needed to find out what it actually was, i.e. its age, mineral constituents, chemical composition, structure, etc. Sinikiwe was able to characterize the rock types and determine the chemical composition and age of the Kameel intrusion for the first time. It is not easy to date intrusions of this nature because they do not contain the mineral most commonly used mineral to date magmatic rocks – zircon. Instead she used two less common and more challenging

mineral chronometers – apatite and biotite. Her ages and compositional results showed that the intrusion was not related to the Bushveld Complex, as was previously thought. So we needed to find out what else it could be related to in the area. The closest mafic intrusive rocks to the Kameel Complex exposed on surface are what is referred to as the Pudukush Gabbro. Unfortunately the magmatic rocks in the Northern Cape in general are very poorly studied, so Sinikiwe needed to date and analyse the Pudukush rocks too to establish if there was any link with the Kameel. It turned out that the Kameel and Pudukush intrusions were not the same age, but each represented an important regional magmatic event during the Palaeoproterozoic Era, whose influence had not previously been recognised in this part of southern Africa – one at 1.95–1.92 billion years ago (Kameel) and one at 1.89–1.83 billion years ago (Pudukush). In addition, Sinikiwe did palaeomagnetic analyses on the Kameel and Pudukush rocks to determine the location of the



rocks at the time they formed from the alignment of the magnetic minerals contained within them relative to the Earth's changing magnetic field. This helps to constrain the position of the continents on Earth during the Palaeoproterozoic, which was of course different to today. It is unusual to include aspects of geochemistry (dating, compositional analyses) and geophysics (palaeomagnetism) in one project, but Sinikiwe proved adept at handling both things."

## 2. How would you describe her approach to research and learning?

"Sinikiwe was very dedicated and hard working. She did not have a strong academic background coming into the degree, but she was determined to improve herself. Academic writing was a weakness, but she recognized this and sought out writing workshop opportunities. When faced with a research challenge, she would spend many hours trying to figure things out herself, which mainly consisted of reading, reading and reading... she regularly frequented the library and owned more textbooks and physical books on geology than I do! She took every suggestion from her supervisors seriously and made copious and meticulous notes."

## 3. Did they face any unique challenges during their PhD journey, and how did they overcome them?

"Sinikiwe faced many challenges in the course of her degree. She had two young children of school-going age, who she had to leave behind in Zimbabwe in the care of others in order to conduct her studies in South Africa. It was extremely difficult for her to be separated from her children, and there were several instances where things went wrong at home and she was not able to be on hand to help, which was very stressful. Eventually she brought them to South Africa and had to place them in schools here and take care of them as well as cope with her studies. It was the assurance that by getting her PhD she would be able to better provide for her children in future and in some way make up for the many years apart that drove her to continue despite the hardships. Her commitment to her family was unwavering."

Sinikiwe's research was also heavily impacted by Covid. When the pandemic struck in 2020, the university and all analytical facilities were closed due to the lockdown and she was forced to return home to Zimbabwe. When university access was opened to postgraduate students once again, international borders remained closed and travel restrictions were such that she was only able to return to SA 7 months later. During that time she had no access to internet, research equipment or resources and had to contend with a very uncondusive home environment. Eventually she was able to negotiate a temporary office space at the University of Zimbabwe, so

she could at least get access to a desk and microscope for a day or two a week. And she worked extremely hard to make up for lost time once back in SA."

## 4. What were some of their most notable academic contributions or achievements?

"Her important research findings are given above. Sinikiwe presented her work at two international conferences (the American Geophysical Union Fall Meeting and Colloquium of African Geology), as well as several local ones. She already had a fully published article in the South African Journal of Geology at the time of her defense, and was working on a second manuscript."

## 5. How has their research impacted or influenced the field, and what do you think its legacy will be?

"Sinikiwe determined the ages, mineralogical and chemical compositions and palaeomagnetic characteristics of both the Kameel and Pudukush intrusions for the very first time. Her new datasets will be hugely valuable for our understanding of the geology of the region, especially given how little was known about this poorly studied area previously. Rocks of 1.8-1.9 billion years old were not previously recognized in this part of the world, so it changes our understanding of the extent and reasons for the regional magmatism at this time. These insights will inspire more work of this nature to be done in the Northern Cape, as there is clearly an interesting story here that we have only just begun to uncover. Her examiners strongly encouraged her to publish her work, as it will be of great value to the scientific community. We will endeavor to do this on her behalf."

## 6. How would their peers and colleagues describe them?

"Many people sent messages on the news of her passing, which we compiled into a book of memories. They mention her admirable drive to succeed and perseverance against all odds, but many also comment on all the help and support she gave to others."

One student colleague says "I have an MSc today because you told me not to give up. I saw your determination, and it was my inspiration." Another says "Your unwavering support and encouragement have helped me to stay strong and face my fears."

She was a very sociable person and quickly established good relations with everyone she came into contact with, from the security personnel at the gate, to the cleaners, administrative assistants, department staff and fellow students. Because of her network of contacts and naturally caring nature, she helped many new postgraduate students find their feet and navigate the university system and was something of a motherly figure in the department.



Even senior leaders at Anglo American sent messages of condolences and shared memories of interactions with her. Despite pursuing career opportunities elsewhere, she was still very involved in geosciences in Zimbabwe and was assisting to compile a fieldguide for the area of her MSc research.”

#### 7. What do you think they were most proud of during their time as a PhD student?

“I think the oral defense was something of a culmination of her achievements. She was only the second student in the department to face this new requirement and she handled it very well.”

#### 8. How is the faculty or department planning to honour their memory and contributions?

“The department compiled a book of messages from friends and colleagues from her time studying in SA,

which we delivered along with a bound copy of her PhD, to her family in Zimbabwe, as a keepsake.

Her research contributions will live on in her publications – her supervisors will write up the remainder of her work.”

#### 9. Is there a message you’d like to share with their family, friends, or anyone inspired by their story?

“In the end the legacy she leaves to her children is the shining example that with hard work and determination you can succeed at any task. Despite all the challenges she did not lose sight of her goal and she was eventually able to obtain her doctoral degree – the highest academic accolade. It is something of which they can be immensely proud.”

## Celebrating Excellence: Prof Mahloro Hope Serepa-Dlamini Named 2nd Global Winner in Corning 3D Cell Culture Competition. *Article Sourced from Prof Serepa-Dlamini*

“Professor Serepa-Dlamini is head of the Biotechnology and Food Technology department. She established and leads the Bacterial Genomics and Biotechnology Group (BGB), which focuses on bacterial endophytes associated with medicinal plants and recently discovered a new *Bacillus* species.

In 2023, Professor Serepa-Dlamini was selected as a top five finalist for the Emerging Young Woman Leader category of the inaugural Higher Education Women’s Leadership Awards (HEWLA) by the Higher Education Resource Services of South Africa (HERS-SA), following an international peer review process. This recognizes her contribution to the higher education sector, including her commitment to helping researchers from disadvantaged backgrounds succeed in their careers.



### Significance of bacterial endophytes

Endophytes are microorganisms that have a symbiotic relationship with plants. They include many different bacterial and fungal species, and have vast potential for a broad range of biotechnological and clinical applications. Professor Serepa-Dlamini’s interest in bacterial endophytes stems partly from a fascination with how Indigenous people use certain plants to treat disease. “By looking at the micro-organisms that are associated with different plants, my group aims to understand how those micro-organisms contribute to plant health, including whether they produce different metabolites from the plant host,” she says. “Ultimately, endophytes have promising utility for applications including the development of antimicrobials, the production of probiotics, and the treatment of contaminated water<sup>1,2,3</sup>

### Discovery of a new *Bacillus* species

In 2024, Professor Serepa-Dlamini received a Research Excellence Award for Early Career/Emerging Researchers from the National Research Foundation (NRF) of South Africa. “This came as the result of my group’s discovery of a novel bacterial species, which represents the first of its kind to be isolated, as well as described, from the African continent,” she explains. “Specifically, we isolated a strain of *Bacillus* from the leaves of *Dicoma anomala*, which we collected from Limpopo Province in South Africa<sup>4</sup>. In Limpopo, the Indigenous people use *D. anomala* for treating conditions including diarrhea, flu, and skin infections. By applying techniques such as multi-locus sequence analysis (MLSA), phenotypic analysis, and fatty acid and polar lipid profiling, we confirmed the new strain to be

a previously undescribed member of the *Bacillus cereus* group. We subsequently named it *Bacillus dicomae* sp. nov. after its plant host.”

### More novel species are expected

Since its inception, Professor Serepa-Dlamini’s Bacterial Genomics and Biotechnology Group has worked with a number of different plant species besides *D. anomala*. “To date, we’ve isolated over 50 bacterial species from plants in South Africa, five of which are novel,” she reports. “We are currently in the process of characterizing these micro-organisms and, by the end of 2025, my group should be in a strong position to report additional new species.”

### An acclaimed young woman leader

Professor Serepa-Dlamini was nominated for the Emerging Young Woman Leader award by several of her colleagues at the University of Johannesburg, who felt that her various leadership roles made her an outstanding candidate. As well as serving on multiple committees, including at faculty level, Professor Serepa-Dlamini was appointed deputy head of department in 2020, before becoming head of department in 2023, and regularly presents her work to global audiences. “The Higher

Education Women’s Leadership Awards (HEWLA) by the Higher Education Resource Services celebrate women whose influence has positively impacted universities and the wider community,” says Professor Serepa-Dlamini. “Women leaders remain underrepresented in South African Higher Education, especially at a Senior Leadership level, so I’m proud to be playing a part in addressing that gender equality.”

### Championing researchers from disadvantaged backgrounds

Another aspect of her role that makes Professor Serepa-Dlamini proud is seeing students develop confidence in the work they are doing. “Most of the students who I work with come from disadvantaged backgrounds,” she says. “To see someone who has been rejected by other universities, or told multiple times that they are never going to amount to anything, come into my group and discover that this is where they are able to realize their potential means a great deal to me. In the end, helping others to achieve their dreams makes everything worthwhile.”



## Faculty of Science Celebrates Women Leadership Excellence

**The University of Johannesburg recently celebrated a key milestone by graduating three notable faculty members from the Faculty of Science from the Women’s Leadership Development Programme (UJWLDP). This pioneering effort aims to empower female leaders and is part of UJ’s commitment to developing creativity and leadership throughout the community.**

Among the graduates, Dr Minenhle Khoza and Prof Hima Vadapalli achieved a remarkable feat by winning the prestigious Action Learning Project Award with their group, a cornerstone of the programme that challenges participants to address real-world leadership scenarios. The project focused on Postgraduate Offerings Challenges: University of Johannesburg Administrative Staff Members and Students’ Perceptions. Their colleagues, Dr Tarryn Lee Botha and Dr Mathapelo Seopela, also celebrated the successful completion of the programme. Dr Botha’s group project focused on NSFAS challenges and strategies to improve student wellness through

safe housing. Dr. Seopela’s group focused on enhancing subject content knowledge for Natural Science teachers by empowering in-service teachers through engaged scholarship.

All academic staff who completed the program expressed gratitude for the personal and professional growth it provided, emphasizing how it prepared them to handle leadership responsibilities with greater confidence and clarity. Faculty of Science graduates jointly felt “The programme taught us how to lead others but also how to better ourselves through growth. And we made a great group of friends in the process”.





## Biochemistry Student Shines: Winner of the Prestigious L'Oréal-UNESCO For Women in Science Award

"Kgalaletso Othibeng is a passionate Biochemistry researcher at the University of Johannesburg, specialising in computational metabolomics. Her research focuses on using advanced computational approaches to prioritise and elucidate bioactive natural products in South African medicinal plants, with a particular emphasis on anti-inflammatory and anti-venom properties.

By leveraging metabolomics, Kgalaletso aims to uncover the therapeutic potential of these natural compounds, contributing to the development of novel treatments and enhancing our understanding of traditional medicine. Her work bridges the gap between computational biology and natural product research, offering innovative insights into the bioactive compounds of South African flora."

## Academy of Computer Science and Software Engineering Prof. Basie von Solms receives the prestigious Isaac L. Auerbach Award, highlighting a milestone in Cybersecurity excellence

Professor Basie von Solms, a leading figure in cybersecurity and information technology, has been awarded the Isaac L. Auerbach Award by the International Federation for Information Processing (IFIP).



This admired recognition, bestowed on only a select few individuals, was granted at IFIP's General Assembly earlier this month. Prof von Solms' achievement marks just the eighth time this award has been given in the federation's 64-year history, a testament to its exclusivity and significance.

Named after the federation's founding President and early computing pioneer Isaac L. Auerbach, the award recognises individuals for their extraordinary contributions to IFIP's mission. Prof von Solms, who has been involved with IFIP for over 45 years, joins an elite group of individuals who have profoundly impacted the global information processing community.

Reflecting on this honour, Prof von Solms says: "This award is the pinnacle of my long-standing relationship with IFIP. I am honoured to have represented South Africa

for so many years and to contribute to the advancement of information processing on a global scale.” Additionally, he dedicated the award to key institutions that supported him throughout his journey, the Institute for IT Professionals of South Africa (formerly the Computer Society of SA) and UJ. “I am incredibly thankful for the time and freedom UJ has granted me to participate in IFIP over the years,” he added.

Prof von Solms has had a long and illustrious career with IFIP. His involvement began in the early 1980s, and over the decades, he rose to prominent leadership roles, including serving as IFIP’s President from 2007 to 2010, making him the first African to hold this position. Among his other accolades, Prof von Solms received the Kristian Beckman Award in 2010 for his contributions to information security and was named an Honorary Member of IFIP in 2014. In addition to his significant contributions to IFIP, Prof von Solms has been at the forefront of global cybersecurity research for over 50 years. Earlier this year, he was ranked 5th in the world for lifetime contributions to cybersecurity research by ScholarGPS, highlighting his immense impact in a field that has never been more critical. Cybersecurity is now one of the most pressing concerns for individuals, businesses, and governments alike, and Prof von Solms’ work has been pivotal in shaping the way we understand and combat digital threats.

“Cybersecurity is more critical than ever in today’s world of evolving digital threats,” said Prof von Solms. “Ongoing research and collaboration are essential to staying ahead of these challenges.”

Prof von Solms has mentored over 30 doctoral students and countless master’s students, many of whom have focused their studies on information and cybersecurity. His leadership has extended beyond UJ, as he currently serves as an Associate Director at the University of Oxford’s Global Cybersecurity Capacity Centre and as a board member of the Centre for Cybersecurity Capacity Centre of Southern Africa. As Prof von Solms nears the conclusion of a career spanning 54 years at UJ, he continues to leave a lasting legacy. His work has laid the foundation for future generations of cybersecurity experts, and his leadership at international institutions further solidifies his reputation as a global thought leader in the field. Commenting on this latest achievement, Dean of the Faculty of Science, Professor Annah Moteetee, said: “We are immensely proud of Prof von Solms’ contributions to both UJ and the global community. His work has been nothing short of groundbreaking, and we celebrate him for this extraordinary recognition.”

Prof von Solms’ recognition with the Isaac L. Auerbach Award represents not only a personal milestone but also a reflection of UJ’s commitment to excellence in research and innovation on the global stage. As Prof von Solms concludes: “This award is a recognition not just of my work, but of the support from my colleagues, students, and UJ. It has been an honour to contribute to the advancement of this field, and I look forward to seeing how the next generation builds on this legacy.”

For more information about Prof von Solms’ work and his contributions to the field, please visit [ScholarGPS](#).”

-Story sourced from [UJ News Media Release](#)



## Vice Chancellor Teaching Award

Professor Dustin van der Haar has been honoured with the 2024 Vice Chancellor’s Teaching Award in recognition of excellence in teaching, marking a significant achievement in fostering academic growth and innovation within the Academy. Watch [here](#).

## Highly Cited Researcher in Computer Science for the 5th consecutive year

Professor Sherali Zeadally, a Distinguished Visiting Professor in ACSSE, has been selected by Clarivate, Web of Science as a Highly Cited Researcher in Computer Science for the 5th consecutive year. In 2024, only 87 researchers were selected for Computer Science worldwide. Press Release [here](#).



## 2024 Projects Day

The Academy hosted a vibrant Projects Day, attended by MEC members, showcasing innovation and collaboration.



## Google AI Initiative for South Africa

Mr. Tevin Moodley and Prof. Duncan Coulter, in collaboration with JBS, are spearheading the Google AI Initiative, a transformative program to upskill South Africans in Cyber Security and Artificial Intelligence. Running from 2025 to 2026, this initiative will generate approximately R4.7 million in funding through the Cyber Security Center and TensorFlow SLP.

## Funding for Emerging Scholars

Mr. Moodley and Prof. Coulter have partnered with BBD to establish a discretionary funding initiative, allocating R500,000 annually to support third-year, honours, master's, and doctoral students from previously disadvantaged backgrounds.



## Research Excellence

- WACV 2025: Mr. Moodley and Prof. van der Haar had a paper accepted at the prestigious IEEE/CVF Winter Conference on Applications of Computer Vision, ranked 9th globally in the computer vision domain.
- IDID 2024: Prof. Mpekoa's paper has been accepted for the Interaction Design and International Development Conference in India.
- ICDECT 2024: Mr. Van Der Westhuizen's third-year student team project was selected for the 5th International Conference on Data Engineering and Communication Technology.
- Smart Trends and ICT Congress: Mr. Lebea achieved dual success with papers accepted at the 9th International Conference on Smart Trends in Computing and Communications and the 10th International Congress on Information and Communication Technology.
- ICITS 2025: A post-PhD paper by Mr. Lebea has been accepted for the 8th International Conference on Information Technology & Systems.
- CIIS 2025: Prof. van der Haar and Dr. Sithungu had multiple papers accepted at the 7th International Conference on Intelligence and Intelligent Systems.

## Conference Contributions

- AI in Healthcare: Prof. Vadapalli presented research at the International Conference on AI in Healthcare, part of Springer's series, derived from an Honours student's work in Biometrics.
- Escape Conference: Prof. Coulter, Mr. Lebea, Mr. Maluleka, Mr. Orfaõ, and Mr. Van Der Westhuizen represented the Academy at this esteemed gathering.

## Engagement and Outreach

- US Public Affairs: Prof. van der Haar was invited by the Public Affairs Office of the U.S. Mission to discuss emerging research trends.
- Diplomatic Visit: Mr. Moodley hosted ambassadors from the Japanese Embassy in the DRC.





## Department of Biochemistry



Professor Mthokozisi Simelane has been shortlisted to showcase the business case on the BioFin investment portal. This represents a valuable opportunity to connect with potential investors and accelerate your business growth. Prof Simelane received the Vice-Chancellor's Distinguished Award 2024: Innovation of the Year.

### Student News

- Mr. IG Mabunda won 2nd place in the 2024 National VYT (Visualize Your Thesis) competition.
- Ms. N Sibanyoni presented a poster at the 11th international Conference on Agriculture (AGRICO 2024),

in Bangkok, Thailand (23 - 24 September 2024) and she won the Social Media Ambassador Price, and attended the 2024 NRF Next generation and emerging researchers Symposium at OR Tambo (23 - 25 October 2024). Ms. Sibanyoni has been appointed as the Country Coordinator for the International Conference in Climate Change and Agriculture in Tropical Latitudes (effecting from the 1 November 2024 - 21 May 2025).

- Ms. A Msobo and Ms. P Maphari gave oral presentations at the 23rd International Congress of The International Society for Ethnopharmacology & the 2nd International Congress of the African Phytomedicine Scientific Society (ISE-APSS2024) at the Cape town international Convention Center (23 - 26 Oct 2024).
- Mr. D Mashabela featured in the NESP Newsletter and he gave an oral presentation at the University Capacity Development Programme (UCDP) Send-Off Colloquium 2024, hosted by the Department of Higher Education and Training in collaboration with Rhodes University and Nelson Mandela University at the Boardwalk Convention Centre in Gqeberha (Eastern Cape) (15 - 17 October 2024).

## Department of Biotechnology and Food Technology

- Dr. Bhekisisa Dlamini was the session chairperson at the [Metabolomics South Africa Early Career Members Network](#) (EMN) Career Night
- Dr. Bhekisisa Dlamini joined the Association of Official Agricultural Chemists (AOAC) Novel Foods - Amino Acids Working Group
- Mr. Edwin Hlangwani was a contributing author of the [BRICS Youth Energy Outlook](#) 2024
- Mr. Edwin Hlangwani was appointed Secretary of the Metabolomics South Africa Early-careers Members Network Subcommittee
- Mr. Edwin Hlangwani presented a poster at the [NRF Next Generation and Emerging Researcher Symposium](#) 2024
- Mr. Edwin Hlangwani presented an oral presentation at the [NRF Next Generation and Emerging Researcher Symposium](#) 2024
- Dr. Minenhle Khoza, Dr. Daniso Beswa, Mr Khuthadzo Tshishonga and Mr Nyawo have

been listed as finalists for the Mail and Guardian Greening the Future 2024 award, following a successful nomination of the work they did for the FoS at Gwakwani Village.

- Mr Nyawo and Dr Khoza participated in a career day on 9th October; the programme was designed for Grade 11 Life Science learners to enhance their knowledge or understanding and introduce them to potential career paths in Biodiversity and conservation.



## Department of Chemical Sciences

- Dr. Mathapelo Seopela and Dr. Elize Smit presented research related to Teaching and Learning at the 5th Commonwealth Chemistry Posters Virtual Conference. They were awarded a poster prize for their poster entitled Unlocking the Secrets of Sampling: Transformative Laboratory Experiments for Undergraduates Based on Environmental Pollution.
- The Community Engagement Workshop on Water Quality was held from 3 to 4 October 2024 in Polokwane, Limpopo Province. Prof Abayneh Ataro Ambushe organized the workshop among with researchers from the University of Venda and University of Limpopo and served as a chairperson of the organizing committee with University of Johannesburg as a lead organization. The workshop focused on the knowledge dissemination of outputs from the Water Research Commission (WRC) funded projects. Prof AA Ambushe presented an oral presentation entitled: "Identifying the Complex Drivers of Water Quality Deterioration in Limpopo Province and Strategies to Improve and Remediate Water in South Africa". Prof MA Mamo also attended the workshop and presented an oral presentation entitled: "A novel chemo-resistive sensor for sensitive detection of Pb(II) ions using interdigital gold electrode fabricated with reduced graphene oxide-based ion-imprinted polymer". Prof AA Ambushe and Prof MA Mamo chaired presentation sessions and discussions with invited stakeholders. Seven postgraduate students (Sifelani Dube, Vincent Masilela, Ntsieni Molaudzi, Pertunia Dikotla, Tsakane Maluleke, Samuel Makobe and Lutendo Mashavha) from Prof Ambushe's research group attended the workshop. They presented their research findings as oral presentations, and all performed very well. The workshop offered an opportunity for invited stakeholders to understand the findings of the research work on water quality of rivers in Limpopo Province and possible solutions from these projects that might have a direct application to the problems of the communities residing in the vicinities of polluted water bodies. The workshop also served as a platform for stakeholders to express their research needs regarding water quality in the province to the WRC and the Universities of Johannesburg Limpopo and Venda. This should enable better alignment between research output and stakeholder needs.
- Prof Ben Feringa gave a Public Lecture on Friday, 08 November. His research has been recognized with

several awards, including the 2016 Nobel Prize in Chemistry, together with Sir J. Fraser Stoddart and Jean-Pierre Sauvage, for the design and synthesis of molecular machines, the Spinoza Award (2004), the Prelog gold medal (2005), the Norrish Award of the ACS (2007), the Paracelsus medal (2008), the Chirality medal (2009), the RSC Organic Stereochemistry Award (2011), Humboldt Award (2012), the Grand Prix Scientifique Cino del Duca (French Academy 2012), the Marie Curie medal (2013) and the Solvay Chemistry for the Future Award (2015). He is a member of the ERC research council. His research interests include stereochemistry, organic synthesis, asymmetric catalysis, photopharmacology, molecular switches and motors, self-assembly and molecular nanosystems. He talked about exploring across the current frontiers of chemical sciences, where there is vast uncharted territory to experience the joy of discovery. Far beyond Nature's design, the creative power of synthetic chemistry provides unlimited opportunities to realize our own molecular world as we experience every day with products ranging from drugs to displays that sustain modern society. In their practice of the art of building small, chemists have shown amazing success in the past decades. Moving from molecules to dynamic molecular systems, the fundamental challenge is controlling and exploiting motion at the nanoscale. His presentation focused on his journey in the world of molecular switches and motors, the process of discovery and his personal experiences throughout his scientific career. In particular, he addressed how fundamental questions and molecular beauty have guided him on this journey.

## Student News

- The University of Johannesburg hosted the Postgraduate Student Workshop organized by the Chromatography Division of the South African Chemical Institute (SACI) on the 23rd of October, 2024. Prof AA Ambushe's PhD student, Mr Samuel Makobe, won the first prize for the best oral presentation.
- The Department of Chemical Sciences organized a Postgraduate Symposium on 23 October 2024. Prof AA Ambushe's MSc students, Mr Vincent Masilela and Mr Lutendo Mashavha won first and second prizes for oral presentations. Prof AA Ambushe's PhD student, Mr Sifelani Dube, got first prize for the best oral presentation.



## Geography Environmental Management and Energy Studies

- Dr. Mahlatse Kganyago has received a best PhD thesis award from the premier society in the UK called Remote Sensing and Photogrammetry Society (RSPSoc), sponsored by the UK Space Agency (UKSpace). It is awarded for the best Doctoral thesis, on the subjects of remote sensing and/or photogrammetry, accepted by a University during 2023. The award was conferred at the National Earth Observation Conference organised by RSPSoc annually, which he attended physically. For the first time, the award was awarded to a student from an African university. This award is significant because it indicates the quality of education offered by South African universities and their competitiveness to the top UK universities. Whereas there is no distinction in the PhD examination, awards like this recognize the excellent work done by the students and set them apart. Dr Kganyago hopes this award will inspire more African youth to pursue their interests, realise their potential, give it their all, and dare to succeed against all odds. His PhD thesis focused on extracting relevant information on field variability to support precision agriculture using the new generation satellite data from Sentinel-2 sensors and artificial intelligence. His PhD thesis resulted in about 10 publications in international journals and conferences. One of his journal papers, part of this PhD thesis, was awarded the Arthur Cracknell Award (formerly the Remote Sensing Letters Award) by Taylor and Francis and RSPSoc. Dr Kganyago is currently a Senior Lecturer and prominent researcher in Geo-informatics at the University of Johannesburg, having been in the industry for nearly a decade working for the South African National Space Agency.
- The latest SAEON newsletter which features an item on our (GEMES) Cathedral Peak field class in August with Prof Chris Curtis. Read more [here](#).
- Professor Gijsbert Hoogendoorn's had his professorial inauguration on the 12<sup>th</sup> of November 2024. The title of his address was: 'Whispered in corridors': Intra-national politics and practices of knowledge production in South African Human



### Student News

- Two GEMES third-year students, Ms. P Mhlalai and Ms. P Ramushu, presented at the Undergraduate Student Research Conference 2024. Ms Mhlalai's presentation focused on "Evaluating Rainwater Harvesting Potential in the Modder River Catchment Using Multi-Criteria Decision Analysis and Random Forest Algorithm", while Ms Ramushu's presentation focused on "Assessment of Annual Trends in Land Degradation Using Multi-Sensor Remote Sensing Data and eXtreme Gradient Boosting Classifier in Modder River Basin, South Africa.". Both were supervised by Dr Mahlatse Kganyago.



## Department of Geology

- Professor Hassina Mouri was inaugurated as a Member of the Academy of Science of South Africa (ASSAf) and named one of Forty-four of the country's leading scholars and scientists.
- "As the official Academy of South Africa, ASSAf has as core function to honour the country's most outstanding scholars by electing them to Membership of the Academy. ASSAf Members are drawn from the full spectrum of disciplines. New Members are elected each year by the full existing Membership. Membership of the Academy is a great honour and is in recognition of scholarly achievement. Members are the core asset of the Academy and give of their time and expertise voluntarily in the service of society."

## DSI-NRF CIMERA

- DSI-NRF CIMERA are to receive a 3rd round of funding under the DSI centre of excellence initiative, commencing 2024. DSI-NRF CIMERA is hosted at UJ and co-hosted at Wits, and is the only DSI-NRF Funded CoE at UJ and the only CoE in the space of economic geology and mineral extraction. We anticipate supporting 81 postgraduate students and PDRFs across the 12 collaborating geology departments in 2025. The CIMERA team are looking forward to a great future supporting geoscience research.
- Congratulations to the recent UJ DSI-NRF CIMERA funded graduates. Their hard work and dedication have paid off, and they are now ready to contribute to academia and industry.
- DSI-NRF CIMERA hosted the 2nd Research Symposium on Critical Raw Materials (CRM) in coal and its by-products on August 30, 2024, at the Johannesburg

Business School. The symposium featured presentations from researchers, industry experts, and government officials. Key topics included:

- The Critical Raw Materials Framework for South Africa
- Research on CRMs and REEs in coal and coal discards
- Real-world REE coal exploration project
- The event aimed to foster collaboration between academia and industry and to promote research and innovation in the field of CRM.
- The DSI-NRF CIMERA conducted stakeholder engagement visits to two universities in the Limpopo Province and was joined by representatives from the National Research Foundation
- University of Venda: Visited the Department of Earth Sciences on August 21, 2024.
- University of Limpopo: Visited the Geology and Mining Department on August 22, 2024.







## Conference Contributions

- From the 19th to the 31st of October, Prof. Mouri was invited to China to attend a series of events and meetings in her role as the new President of the International Union of Geological Sciences.
- The primary aim of the visit was to foster relationships, explore collaborative opportunities in deep earth science, and engage with key stakeholders within the Chinese community and government.
- Prof. Mouri's journey began with travelling from Johannesburg to Beijing, arriving in the early hours of 20 October. The schedule was packed with meetings, conferences, and visits to several prestigious institutions and government organisations throughout China. On 21 October, Prof. Mouri met with Dr. Li Jinfa, the Vice Minister of Natural Resources of China. Dr. Jinfa, is also the President of the China Geological Survey and the Chinese Academy of Geological Sciences. Prof. Jinfa seized the opportunity to sincerely congratulate Prof. Mouri on being the 1st female geoscientist and African to lead such a prestigious union.
- The following day, Prof. Mouri addressed the opening ceremony of DEEP 2024, a major conference on deep-earth research attended by over 400 delegates (geologists and geophysicists) worldwide. During her visit to Beijing, she was invited to a meeting with Mr. Chen Jiachang, the Vice Minister of Science and Technology of China, with whom she had a long discussion followed by lunch. Mr. Chen Jiachang also expressed his wholehearted congratulations to Prof. Mouri for her achievement and for being the 1st female geoscientist to be elected to such a

prestigious position. During their meeting, Prof. Mouri, the Vice Minister and the Director of the International Cooperation of the Ministry of Science and Technology, had a lengthy discussion on the support and collaboration with IUGS and African geoscientific institutions in general.

- Over the next few days, Prof. Mouri attended various conference talks and engaged with delegates, fostering international collaborations between geology and geophysics.
- On 24 October, she was accompanied by Prof. Shuwen Dong to visit multiple institutions, including the Ministry of Natural Resources Labs, the Beijing SHRIMP Center, the Chinese Academy of Geological Sciences, and the IUGS Secretariat office, where further discussions were held with Dr. Wu Dengding, the Vice President of CAGS. Afterwards, she was invited for dinner with the former IUGS President and the Vice Minister of Mineral Resources, as well as other distinguished guests from the Ministry of Science and Technology and researchers from China and overseas.
- From 25 to 26 October, given the background of Prof. Mouri as a metamorphic geologist, she was invited to participate in a field excursion to Dabieshan, a unique geological occurrence of ultra-high pressure metamorphic rocks, the 3rd example in the world.
- The field excursion culminated with an invitation to visit the Tianzhushan UNESCO Global Geopark Museum on 27 October, which included a meeting with the Management Committee focusing on geoheritage preservation strategies underlining the significance of conserving geological resources.

## Department of Zoology

- The Department of Zoology is proud to announce that Dr Tarryn Lee Botha, a dedicated researcher from the Faculty of Science, will host the first-ever SETAC (Society of Environmental Toxicology and Chemistry) World Congress on African soil. This prestigious global event is scheduled to take place in Johannesburg in 2025 under the theme: "Sustainable Development in a Changing World: Integrating Environmental Science, Policy and Practice."
- This milestone event will bring together leading environmental scientists, policymakers, and industry professionals from around the world to address critical challenges in sustainability and environmental management. SETAC World Congresses are renowned for their interdisciplinary approach, fostering collaboration to develop innovative solutions for global environmental issues.
- Dr Botha has been instrumental in bringing this congress to Africa, showcasing her commitment to advancing environmental science on the continent. Her leadership underscores UJ's growing influence as a hub for scientific innovation and global collaboration. "Hosting this congress is not just an honour but also an opportunity to highlight the unique environmental challenges and opportunities in Africa," said Botha. "We aim to showcase how science can drive sustainable development while fostering meaningful partnerships across disciplines and borders." Session proposals will open at the beginning of December 2024, we urge you to partner with collaborators and propose a session. Abstracts will be due mid-2025. May we come in force to showcase the excellent work done within the Faculty of Science.
- For updates and more information about the SETAC World Congress 2025, visit the SETAC official website.
- Dr Vilakazi successfully completed her PGDip in Research Supervision at UJ. She graduated on 21 October.
- As part of the ongoing exchange program between the Zoology Department and the Swire Institute of Marine Sciences (SWIMS) and The University of Hong Kong, 9 honours students from the department attended the 5-day Ecology and Evolution field course from the 13th to the 18th of October. The 9 students got the opportunity to network with students and staff from The University of Hong Kong while taking part in practicals related to both marine and terrestrial ecology. During the different practicals students learned about ecological principles in both marine and terrestrial environments the effects that rapid urban development and traditions are having on Biodiversity and ecological succession. The department would like to thank the UJ Internationalisation office and Prof Gray Williams from the University of Hong Kong for financial assistance.
- Honours students who attended the Ecology and evolution field course at Pak Tam Cheung holiday camp, Hong Kong.
- PhD student Refilwe Chilo (Supervisor Dr Bird), who was awarded third place in the National 3-minute thesis competition held in Bloemfontein at the end of October.

