



## NEWSLETTER

NOVEMBER 4  
2024



UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG



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### DSI-NRF CIMERA Celebrates Achievements and Looks Forward to 2025



#### Welcome Message by Prof Judith Kinnaird

As we approach the end of another successful year at CIMERA, it is time for us to look forward with anticipation but also to look back with satisfaction at our achievements. Our BIG NEWS is that the DSI through the NRF have agreed to support us for another 5-year funding cycle, which includes 2024 and will conclude at the end of 2028.

During 2024 we have participated in a number of events including Mining Indaba in Cape Town, where around 10 students got the opportunity to take part. Such experiences are a significant part of becoming a professional geologist. Many conferences were attended by CIMERA folk, both at home and abroad. Many of our staff were invited keynote speakers, and our postgrads gave excellent papers across a range of meetings, often with award-winning results and we should salute such achievements.

Our Annual Research Colloquium will be held on 25<sup>th</sup> and 26<sup>th</sup> November in the University of Johannesburg Business School. This event gives our postgraduates the chance to shine as they showcase their research. Postgrads in the early stages of their research are encouraged to present a poster, whilst those in their final year of study are required to give an oral presentation. This gives our postgrads the opportunity to present their work in front of an audience of around 80, an experience that will stand them in good stead for their future careers.

In previous years, we have also had a competition for 'translating your research'. This aims to encourage submissions explaining in everyday terms what their research is all about. This year the competition has changes slightly to require that a simplified explanation of their research project is written in their own language. This seems to be popular, and at the time of writing, there have been a number of submissions.

In 2024, the CIMERA management team were able to visit many of our partner institutions and were gratified to hear of all the activities that our postgrads have been involved in. There was an extremely good attendance at the Society of Economic Geologist's meeting in Windhoek in late September where the conference theme was 'Sustainable Mineral Exploration and Development'. For some, the size of the event, with more than 800 delegates in attendance from across the world, was intimidating at first, but soon everyone was chatting with new people. Everyone seemed to enjoy the varied programme, and the emphasis of talks by postgraduates. For those not given an oral spot, there was a chance to present a poster or/and give a speed talk. What always characterises the SEG conference is the friendliness and approachability of everyone from the top international economic geologists down to the new postgrads eager to meet some of the 'big names'.

In looking forward, I will be stepping down as Co-Director and Prof. Sue Webb at Wits will be taking over from me. Having set up the CoE back in 2014, with Prof Nic Beukes from UJ, I have been proud of the achievements of CIMERA and its postgrads, some of whom are now in senior positions across the globe. I have been particularly proud that we have been able to fund postgrad research and to achieve dreams for some who never thought they would have the financial resources to undertake higher degrees. Well done to you all in achieving your goals. For 2025, the CoE will be funding 81 postgraduate and postdoctoral positions not just at UJ and Wits but across our partner institutions across the country. This is a great achievement and acknowledged by the NRF as rewarding.

Although I am stepping down as Co-Director, I will remain on the Scientific Advisory Committee of CIMERA for the foreseeable future, and will still return to South Africa to do some teaching as required.

The number of activities that the CoE will be involved with for 2025 is ever increasing and in doing so, we are raising the profile of the Centre, hopefully this will help us to attract further external funding to keep us sustainable when our NRF funding cycle is due to end in 2028.

So here's to a great 2025 and let's keep the CIMERA banner flying high. *Judith A. Kinnaird*

## IMPORTANT ANNOUNCEMENTS



### NRF Funding Announcement

Great news! 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, and thank the DSI and the NRF for ongoing support.



CoE Manager farewell lunch with the DSI-NRF CIMERA Management team.

### Ms Lizzie Tau's Farewell

With sadness, we bid farewell to Gobona Lizzie Tau and wish her well with her future endeavors. Lizzie has been an integral part of the team since mid-2022, and she has certainly helped the CoE achieve many of its milestones in recent years. She will be missed by all, but we know she will continue to interact with the CoE in her new adventures in the geosciences.



### DSI-NRF CIMERA students invited as panel speakers at Mining Indaba 2025.

We are excited to announce that four CIMERA funded postgraduate students have been selected to participate as speakers at Mining Indaba 2025 for various sessions presented on the Disruptive Discussions Stage. The Disruptive Discussions aim to engage panelists on relevant topics in mining, challenging the status quo, and finding solutions to existing problems within the African mining industry. We are looking forward to attending Mining Indaba next year!

## DSI-NRF CIMERA PEER-REVIEWED ARTICLES — LAST QUARTER 2024

### Focus Area : 3

*The use of combined CMg isotope compositions of carbonates from orogenic SbAu deposits as a tracer of fluid interaction with sea-floor altered crust.*

Andrea Agangi, Axel Hofmann, Takuya Echigo, Robert Bolhar, Daisuke Araoka, Vincent Mashoene, Lucia T. Ndhlovu, Ryohei Takahashi, Pearlyn C. Manalo,

Link: <https://doi.org/10.1016/j.chemgeo.2024.122442>

### Focus Area : 9

*Electron energy loss spectroscopy for differentiating of minerals polymorphs.* Dr Vladimir Roddatis, Dr Elizaveta Kovaleva, Dr Marcin Syczewski, Anja

Schreiber, Dr Richard Wirth, Prof Monica Koch-Müller, Link: <https://doi.org/10.1051/bioconf/202412906032>

### Focus Area: 7

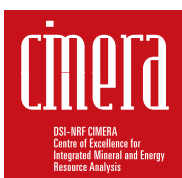
Biswas, S., Moroeng, O.M., Wagner N.J. 2024. *Mineralogy and geochemical controls on the distribution of REY-Ga-Se-Nb enrichment in the No. 6 Coal Seam, Soutpansberg Coalfield, South Africa.* Ore Geology Review (accepted).

Rerani, V.P., Mabowa, H.M., Wagner, N.J. 2024. *Characterisation of rare earth element-bearing mineral phases present in South African coal ash using Mineral Liberation Analysis.* Fuel. 368, 131661.

Ndasi, M.B.; Wagner, N.J.; Viljoen, R. *Petrological, Geochemical, and Mineralogical Characterization of Three Coal Seams of the Imaloto Basin, Southwestern Madagascar.* Minerals 2024, 14, 620. Link: <https://doi.org/10.3390/min14060620>

Biswas, Sanki, Nicola J. Wagner, Ofentse M. Moroeng. 2024. *Organic petrographic and mineralogical composition of the No. 6 coal seam of the Soutpansberg Coalfield, South Africa: Insights into paleovegetation and depositional environment.* International Journal of Coal Science and Technology, 11:41.

Moroeng, O, Murathi, B., Wagner, N.J. 2024. *Enrichment of rare earth elements in epigenetic dolomite occurring in contact metamorphosed Witbank coals (South Africa).* International Journal of Coal Geology, 282 104405.



### Calling all CIMERA Alumni

Please ensure that we have your updated details as we would like to invite you to our events.

Please email the CoE Manager at [cimera@uj.ac.za](mailto:cimera@uj.ac.za) and share your news with us.

## CONFERENCES

Dr. Senamile Dumisa, waving the South African geology excellence flag high at the Gordon Research Conferences, Maine, United States of America

I attended the Gordon Research Conference in the United States, and I had the opportunity to present a poster on my PhD work from the [University of the Witwatersrand](#), which was a significant part of the main conference.

Moreover, I also participated in the Gordon Research Seminar, which focused on upcoming researchers like myself. I was honoured to be chosen as a discussion leader for one of the sessions during the Seminar, which was a fantastic experience.

I would like to extend my deepest gratitude to [DSI-NRF CIMERA](#) for sponsoring my attendance at this conference, as it was truly a valuable and enriching experience.”

[Dr Senamile Dumisa \(Candidate Natural Scientist\)](#)

### 37th International Geological Congress in Busan, South Korea — Peace Zowa

The 37th International Geological Congress (Olympic Games of Geoscience), held in 2024 in South Korea, is a significant event for the global geoscience community. It brings together experts, researchers, and practitioners from around the world to discuss and share advancements in geology. The congress features various topics, including climate change, natural hazards, resource management, and geological processes. With its focus on fostering international collaboration and advancing geological science, the event aims to address pressing geological issues and promote sustainable solutions.

PhD student from the [University of the Witwatersrand](#), [Peace Zowa \(Cand.Sci.Nat\)](#), presented his geochemical data on Sr-Nd isotopes in apatite for the Rustenburg Layered Suite (RLS) at the 37th International Geological Congress (IGC) in Busan, South Korea. His research provides a unique opportunity to investigate the geological evolution of the RLS, contributing to a deeper understanding of magmatic processes and the formation of economic mineral deposits, particularly platinum-group elements (PGEs). The implications of his study can be extended beyond academic interest, as they directly relate to the metallogenesis and indirectly relate to mineral exploration in the Bushveld Complex and similar layered intrusions globally. The 37th IGC conference in Busan presented an ideal platform to present these findings to an international audience of geoscientists, fostering collaboration and knowledge exchange. Presenting his findings not only facilitated the dissemination of groundbreaking research but also significantly contributed to advancing the understanding of magmatic processes and their direct implications on the metallogenesis of the RLS.



Dr Senamile Dumisa & Prof Judith Kinnaird at the Gordon Research Conference



Peace Zowa, Dr Tahnee Otto, Dr Steve Chingwaru, Daniel Ferreira, Greg Botha and Ruan Raath.

“I gained exposure to cutting-edge research presented at IGC 2024 by professionals and students. Presenting my research at this prestigious international event enhanced my academic profile and visibility in the global research community. Additionally, I gained valuable feedback from leading experts in

economic geology and geochemistry. Engaging with diverse research topics and methodologies presented at the congress helped me to broaden my understanding of current trends and innovations in geology. The IGC provided a platform to connect with established geoscientists, researchers, and peers, which

led to future collaborations, mentorship opportunities, and career advancement. The experience of presenting and discussing my research in such a setting contributed to my skills in communication, presentation, and scientific debate.”

[Peace Zowa \(Cand.Sci.Nat\)](#).

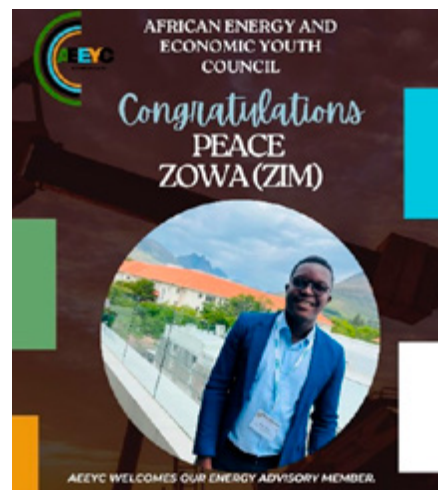
## STUDENT NEWS

### University of Johannesburg Graduation, 23 October 2024

Congratulations to our DSI-NRF CIMERA graduates; your hard work, sweat and tears have paid off. Thank you for your perseverance and for setting a standard for upcoming CIMERA students. We know that future is ready for you and wish you all well. Please remember you are now CIMERA Alumni – please stay in touch and send us your news.



From left: Dr Moses Ndasi, Dr Welhemina Langa, Miss Maropeng Mailula, Dr Thendo Netshidzivhe (SARCHI Chair funded), Dr Boikanyo Motloba, and doctoral degree awarded to Dr Sinikiwe Nkube posthumous.



PhD Student, Peace Zowa, Wits.

### Membership appointment of the AEEYC Energy Advisory Board

Congratulations to **Peace Zowa (Cand.Sci.Nat)** for being appointed as a key member of the AEEYC Energy Advisory Board. Peace embodies the spirit of African innovation and leadership in the critical minerals and energy sector.

## CIMERA EVENTS

### 2nd Coal Research Symposium, 30 August 2024

DSI-NRF CIMERA hosted the 2nd Research Symposium on Critical Raw Materials (CRM) in coal and its by-products at the **Johannesburg Business School (JBS)** on the 30th of August 2024.



2nd Coal Research Symposium delegates group photo

**Prof Reinout Meijboom**, Vice Dean of Research, Faculty of Science, **University of Johannesburg**, welcomed all to the symposium, stressing the need to work beyond silos. Deputy Minister of Higher Education **Buti Manamela** encouraged students and industry experts to share their research and highlighted the **Department of Higher Education and Training (DHET)**'s support for the symposium. **Ms Setepane Mohale**, Chief Director of Economic Analysis and Statistics, **Department of Mineral Resources and Energy**, presented a keynote address on the Critical Raw Materials Framework for South Africa, providing an update on the DMRE's CRM strategy. **Dr Nandi Malumbazo (PhD in Chem. Eng.)** (co-organizer, **University of the Witwatersrand**) set the scene for the symposium, stressing the importance of research into CRM and REE in coal and coal discards.



Prof Nikki Wagner, Dr Nandi Malumbazo, Dr Lumkile Mondli, Deputy Minister Buti Manamela and Prof Reinout Meijboom.

Eight postgraduate students from the Faculty of Science at the **University of Johannesburg**, the **University of South Africa/Universiteit van Suid-Afrika** and the **University of the Witwatersrand** presented their research work. Dr Kelley Reynolds, **Eskom Holdings SOC Ltd**, provided an update on the legacy ash project. The keynote address from **Dr Alex Moyes, PhD**, Director of Critical Minerals for Director of Critical Minerals for Ramaco Resources, Wyoming, USA, demonstrated a real-world REE coal exploration project, which was very well received; the topic: Unconventional Rare Earth Element Deposit in Wyoming. The open discussion session expanded on the conversation and research needs, as well as the importance to transition from research to application. **Prof Nikki Wagner** (DSI-NRF CIMERA) closed the event, indicating that the 3rd symposium will take place in 2025.

The symposium was attended by 51 participants in-person and 39 online from academia and industry. We express our thanks to the programme facilitator, Dr Lumkile Mondli, for facilitating the day and **DSI-NRF CIMERA** for the arrangements. Sponsors **DSI-NRF CIMERA** and **Seriti Resources** through the **School of Chemical and Metallurgical Engineering, Wits University**, are thanked for their support. All speakers and presenters are thanked for their involvement in supporting this evolving research field.

Gallery: <https://cimera.co.za/2024-gallery/2nd-coal-research-symposium-2024jbsjohannesburg/>

## DSI-NRF CIMERA visits to collaborative universities: University of Venda and the University of Limpopo

On Day 1 of the **DSI-NRF CIMERA** stakeholder engagement university visits to Limpopo Province, we visited the **University of Venda**, Faculty of Science, Engineering and Agriculture Department of Earth Sciences, 21 August 2024. Ms Malekgotla Finger and Ms Mandise Cele from the NRF CoE team joined Prof Wagner, Prof Webb, and Miss Matiwane.

Our visit to the **University of Venda** started with

a warm welcome from the geology department staff members and students. We kicked off the morning with an overview of the geology department, an overview of the **DSI-NRF CIMERA** research group and **Prof Nikki Wagner** gave an update on **DSI-NRF CIMERA**'s growth and plans.

**DSI-NRF CIMERA**-funded geology students presented diverse and informative presentations regarding their research. **Prof Susan Webb** gave

a public lecture on 'Modelling and drilling the largest magma chamber on earth: Integrating geophysical and drilling data for a better understanding of Bushveld Complex geometry'. The presentation was very well received, and may even have converted a few geology students into geophysicists.

We wrapped up the day with a tour of the department's facilities and equipment.



Group photo of the University of Venda students, academics and CIMERA Team.



Prof Nikki Wagner



Prof Susan Webb

Gallery: <https://cimera.co.za/2024-gallery/university-of-venda-dsi-nrf-cimera-stakeholder-engagement-visit-thohoyandou-vendalimpopo-2024/>



Prof Nikki Wagner and Prof Chris Baiyegunhi.

On Day 2 we visited **University of Limpopo @ULVarsity** Geology and Mining Department, August 22, 2024. We received an exceptionally warm welcome from the Geology and Mining Department staff members and students and the Faculty of Science representatives. Mrs. **Maropene Rapholo** (HoD) and the DVC Research, Innovation, and Partnerships, Professor J. Singh, provided an overview presentation of the department.

**Prof. Nikki Wagner** gave an overview of the **DSI-NRF CIMERA** growth and plans. And **Prof. Susan Webb** gave a public lecture on 'Modelling and drilling the largest magma chamber on earth: Integrating geophysical and drilling data for a better understanding of Bushveld Complex geometry'.

**DSI-NRF CIMERA** funded students presented their research work and the NRF team was impressed by the students' presentations.

We wrapped up the day with a tour of the department's facilities and equipment and observed the almost complete new Earth Science building.



Prof Susan Webb

Gallery: <https://cimera.co.za/2024-gallery/university-of-limpopo-dsi-nrf-cimera-stakeholder-engagement-visit-polokwane-limpopo-2024/>



Prof Nikki Wagner

## INDUSTRY EVENTS



### Africa Mining Summit

Prof Nikki Wagner attended the Africa Mining Summit in Gaborone 24-26 September 2024. Hon. Moagi, Minister of Ministry of Minerals and Energy, Botswana, provided the Keynote Address. Prof Nikki Wagner's spotlight presentation 'New ways of using coal' was very well received.

Left: Hon. Moagi, Minister of Ministry of Minerals and Energy, Botswana.

### SEG2024 Conference: Sustainable Mineral Exploration and Development

DSI-NRF CIMERA CoE Manager, Ms Lizzie Tau, CIMERA students and alumni, along with Prof Judith Kinnaird, attended the SEG2024 conference held in Windhoek, Namibia. The Sustainable Mineral Exploration and Development conference is a major international gathering of geologists, mining professionals, and industry leaders, where presentations and conversations focused on the latest advancements and challenges in mineral exploration and development. Prof Kinnaird was on the organising committee, thus ensuring the success of the event.



CIMERA students and friends at SEG2024, Namibia.

## GSSA African Exploration Showcase, 6-7 November 2024

The DSI-NRF CIMERA team recently participated in the GSSA African Exploration showcase hosted at the Emperor's Palace Convention Centre. Dr George Henry and Khanya Matiwane manned the CIMERA booth, and Prof Nikki Wagner delivered an informative presentation on "Exploration for Secondary Sources of Rare Earth Elements: the Potential of South African Coal Deposits" on Day 1. Her talk highlighted the need to understand the distribution of rare earth elements in South African coal-bearing deposits. Prof Susan Webb gave a presentation on "The International Continental Scientific Drilling Program (ICDP) Bushveld Drilling Project (BVDP). Developing a Bushveld Complex reference section and incorporating geophysical data". As the last presenter for the two-day event, Prof Webb certainly kept the audience's attention with updates on the deep drilling project; please do visit the [drill website BVDP, South Africa](#).



Dr George Henry and Ms Khanya Matiwane



Prof Nikki Wagner

## CIMERA CO-SPONSORSHIP



Some UJ geology honours students showing off their DSI-NRF CIMERA sponsored hoodies at a mine visit in September.

## JPL Visiting Student Research Program (JVSRP internship) in California

Catherine Grobbelaar, MSc, [DSI-NRF CIMERA](#), [University of Cape Town](#) student.

"I'm currently doing my JPL Visiting Student Research Program (JVSRP internship) in California. The JPL Visiting Student Research Program (JVSRP) allows students to intern at [NASA Jet Propulsion Laboratory's](#) facility in California.

As part of their fellowship, students are partnered with JPL scientists or engineers, who serve as the students' mentors. Students complete designated projects outlined by their mentors, gaining educational experience in their fields of study while also contributing to [NASA Jet Propulsion Laboratory](#) and JPL missions and science. Students also have the opportunity to participate in a number of enrichment activities, including tours, lectures, and career advisement, as arranged by the JPL Education Office. Link: <https://lnkd.in/eGfqJgR>

I am doing my JVSRP in conjunction with my MSc, and this opportunity would not have been possible without [DSI-NRF CIMERA](#). My co-supervisor is based at JPL, and she recommended that I come to JVSRP so that I can get help with my data analysis and contribute to the objectives of her projects here." By Catherine Grobbelaar, MSc, [University of Cape Town](#) student.



Catherine Grobbelaar, MSc, University of Cape Town.



Catherine Grobbelaar, MSc, University of Cape Town at the NASA Jet Propulsion Laboratory California Institute of Technology.



### Field work

"I recently worked as a field assistant for Post Doctorate Research Fellow [Dr Daniel Kwayisi](#) and [Professor Jeremie Lehmann](#). I assisted in mapping the structural geology of the Onverwacht Anticline, located in Mpumalanga Province and part of the Barberton Makhonjwa Mountains. This experience has been invaluable to my MSc studies, and I enjoyed every moment."

Left: [Atavile Ximbi](#), MSc Student, [University of Johannesburg](#).



**Advances in the development of Virtual Geological Tours**

South Africa boasts a great many important rock outcrops that preserve amongst others, the history of continents, as well as the emergence and evolution of life. These include “famous” sites such as the Vredefort Dome, Sea Point Contact, as well as lesser known sites such as Cape Granite Suite-associated exposures at Yzerfontein and Paternoster, and Cape and Karoo Supergroup exposures near Laingsburg. Some of these geo-heritage sites are also important geological field skills training areas for undergraduate university students. Unfortunately, many of these, such as at the Sea Point Contact (Figure 1) have been damaged due to vandalism, with several others threatened by construction (e.g. the unconformity exposed along Chapman’s Peak Drive, Cape Town, locally covered with shotcrete for safety reasons) or natural disasters.

As a result, our project entitled “New Advances in the development of Virtual Geological Tours” is aimed at building immersive Virtual Field Trips (VFTs) to these areas. This we are doing at three different levels of complexity intended (1) to add quality imagery to the “Geodyssey” database and mobile app; (2) to provide informative online

VFTs for geo-tourists or geologists to visit; and (3) to assist geology students to prepare for field excursions, or even to supplement prohibitively expensive visits to remote places.

We have started in the Western Cape by digitally documenting (1) intrusive Cape Granites within Tygerberg Formation shales at the quarry at Jan van Riebeeek High School’s sports fields; (2) upper Cape and Karoo Supergroup (Dwyka and Eccca group) sediments at Laingsburg; (3) igneous banding of Cape Granites at Victoria Road (Cape Town); (3) compositionally different granitic rocks at Cape Columbine (Figure 2) as affected by the Colenso Fault; (4) as well as hydrothermal vein-intruded gabbro-diorites at Yzerfontein. To do this, we have made use of sophisticated equipment (4K video camera, Apple iPhone 15, high-resolution R5 Canon camera, DJI Mavic 3 Pro Cine drone) to film expert geologists explaining what there is to be seen, to acquire the necessary digital photographs and drone imagery, and to LIDAR scan 3D images of key geological features at these sites.

We are currently compiling VFTs from this mountain of data using a plethora of software packages such as Google Earth Cine to “fly into” the site and show the areal overview; PTGUI

to seamlessly stitch hundreds of photographs into high-resolution panoramic images; Agisoft Metashape to photogrammetrically process the drone images; Sketchfab to host the 3D LIDAR and drone-generated models; Microsoft ClipChamp and CapCut to compile and edit the videos; Pano2VR to create interactive 360-degree visual experiences complete with hotspots linked to the different media types, and Google Earth online to pull each VFT (which comprises different sites) together within a web-based platform.

Not only will these products contribute to geo-tourism and to the preservation of our geo-heritage, but by providing VFTs before actual field excursions we can prepare students for what they are about to see, what to look out for, and how to use what they observe to better their understanding of the geology in the subject area.

In the coming months we will revise and upgrade existing VFTs made by various students in previous years covering the Tanqua Karoo, and the Peninsula Formation at Table Mountain and Lion’s Head. We also intend to produce VFTs of aspects of deformation as recorded in the southern arm of the Cape Fold Belt and to document key features of the Vredefort Impact Structure.



Figure 1: Vandalism at the Sea Point Contact location.



Figure 2: Charl Cilliers and Jan van Bever Donker at Cape Columbine, Paternoster.

**International Continental Scientific Drilling Program (ICDP) Bushveld Drilling Project**

The International Continental Scientific Drilling Program (ICDP) Bushveld Drilling Project (BVDP) is drilling a groundbreaking core reference section through the ~9 km thick Rustenburg Layered Suite of the Bushveld Complex. Since April 2024, drilling in the Eastern Limb Camero section started in the Lower Critical Zone with a goal of reaching the Transvaal floor rocks. These new drill cores will supplement the 6 km of core already donated to the project.

Guided by aeromagnetic and seismic data, the team is capturing key downhole geophysical data at intervals along the hole—density, magnetic susceptibility, conductivity, seismic velocities, and more. The archiving core samples of the drill core is hosted at the Council for Geoscience National Borehole Core Repository. Additionally, surface reflection and passive seismic data, using innovative, cost-effective weight drops and miniVibroseis sources, enrich this dataset.

This project enhances understanding of the Bushveld Complex and showcases South Africa’s role in global geoscience. Follow daily updates at [ICDP Bushveld Drilling Project](#).

**FINAL WORD**

This is the final DSI-NRF CIMERA Newsletter for 2024. We’ve certainly had a busy and productive year and look forward to the adventures 2025 will bring. Thank you to all those who have contributed to the Newsletter – we look forward to receiving updates on all the activities funded by CIMERA in 2025. We extend our deepest gratitude to Prof Judith Kinnaird for years of dedication to the CoE and wish her well on what is hopefully her final and most successful attempt at retiring!

**We wish you all a great festive season and summer holiday; close 2024 in style and re-energise for 2025.**



Thin section map image

**cimera**

DSI-NRF CIMERA  
Centre of Excellence for  
Integrated Mineral and Energy  
Resource Analysis

# Mineral Liberation Analyser



The **MLA (QUANTA 650 FEG SEM)** is an Automated Scanning Electron Microscope equipped with Energy Dispersive X-ray Spectrometry designed for high-resolution imaging, rapid automated data collection, and mineral phase identification. The data is derived from two-dimensional measurements from the exposed surface of either a standard thin section or a 25/30mm diameter polished section. The ability of unattended analysis on multiple sections leads to a larger throughput of data.

**LOCATION:** SPECTRA  
University of Johannesburg,  
Auckland Park Kingsway Campus, C1 Lab 348

**SERVICES:**  
**Manual SEM analysis**

- High resolution imaging
- Elemental Mapping
- Line mapping
- Single EDS analysis

**Automated SEM analysis**

- Detailed mapping of geological material (milled or in-situ)
- Determine mineralogical composition

Particle detail:

- Liberation
- Grain Size Distribution
- Mineral Association

**SAMPLE TYPES:**

- Standard thin section
- Milled material set in resin blocks (25/30mm diameter)

**ORE TYPES:**

- Fly ash
- Precious metals
- Base metals
- And other commodities

**SEVICES AVAILABLE TO:** Academia and Industry

**ENQUIRIES:** Contact [gabriellef@uj.ac.za](mailto:gabriellef@uj.ac.za) or [cimera@uj.ac.za](mailto:cimera@uj.ac.za)

