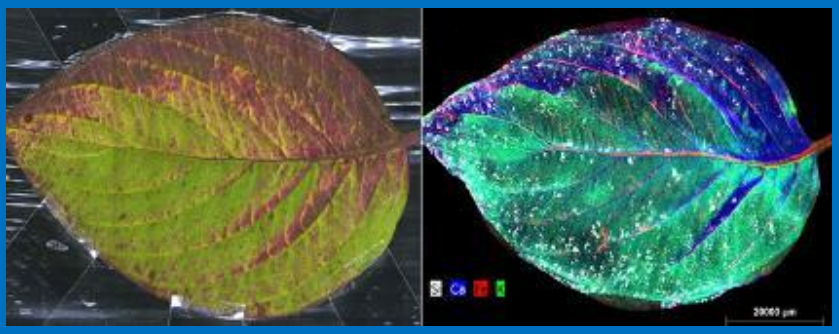

FIRST Newsletter
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Review of International Mineralogical Association (IMA) Meeting 2014, Gauteng, South Africa

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Experience Mineralogy at its best in South Africa at IMA 2014

1 - 5 September 2014
Sandton Convention Centre, Gauteng South Africa

Mineralogy from Amphibolite to Diamonds to Zebras!

This year's exceptional IMA 2014 meeting delved deeper into science and continuous education for the attendees. With its rich mining areas and unique mineralogical localities, South Africa is the ideal place for a mineralogical conference. Pre- and post-conference field trips allowed attendees to visit in person the type localities one usually only reads about, such as the famous Cullinan diamond mine and the ore localities associated with the Bushveld complex. The iron ore and manganese deposits of the Northern Cape as well as a working chromite mine and a visit to a modern smelter were highly sought after field trips!

The opening speech was given by the Minister of Research and Technology, Honorable Naledi Pandor, illustrating the high profile that mineralogy and mining has in South Africa. The opening ceremony further delved into the topic by featuring a Gumboot dance, performed by a group from Pretoria Boys High School wearing "wellington boots", which were pioneered by the miners.

Bruker participated with a team of scientists in the sessions and workshops, as well as presenting the full range of instrumentation for geoscience and mining. Bruker's modern, open booth design with a live D2 PHASER benchtop XRD instrument allowed for interaction and discussion between the international visitors and our high-rated team of product specialists.

Bruker-sponsored workshops and sessions were well attended and proved to contain a wealth of information. Dr. Karsten Knorr presented on *Quantitative Phase Analysis (QPA) in Mineralogy using XRD*, together with the world renown XRD expert from CSIRO, Dr. Ian Madson. Dr Knorr then taught a hands-on workshop on QPA using the latest version of TOPAS software. Attendees of the pre-conference workshop were challenged to apply the presented concepts using TOPAS individually on

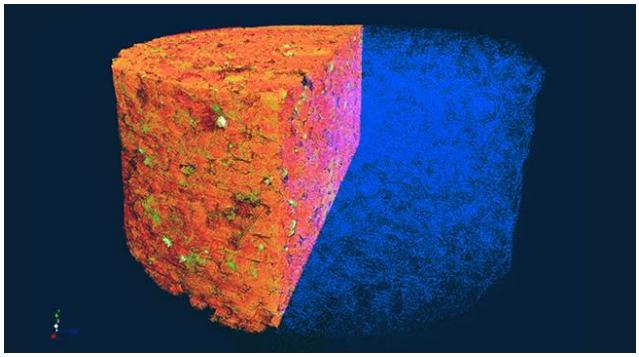
Cullinan Mine (clockwise from upper left): open pit, natural reserve, exceptional 122.52 carat blue diamond recovered at from the mine in June 2014 , and processing plant.*

** Photos courtesy of PETRA Diamonds ZA*

Gumboot dance performed by Pretoria Boys High School

the provided laptops. Learning by doing proved to be very valuable for the attendees, who commented very favorably on the content of the workshop.

One of the red-hot topics during the conference was the application of X-ray tomography to the earth sciences: Bruker MicroCT sponsored the session titled *Computed Tomography –Pushing Frontiers in Imaging of the Third and Fourth Dimension*. The session provided a good overview of the current capabilities, research, and applications such as Platinum Group Metals (PGM) mineralization investigation in the famous Merensky reef. Combining techniques such as SEM and XRD with MicroCT opened up even more applications. In modern geoscience, cooperation and interdisciplinary research is becoming the norm and the catalyst for new developments and findings!



Sandstone image by Bruker MicroCT.

For the applied mineralogist, a workshop on *Applied Mineralogy of Cement and Concrete* sponsored by Pretoria Portland Cement PPC offered a wealth of new information, from microscopy methods with SEM to Quantitative Mineralogy using XRD and the Rietveld methods. A talk on the failure modes of concrete illustrated the importance of being able to correctly identify and describe the petrological composition of the aggregate used in the concrete. This is developing into a new application for SEM-based automated mineral identification methods.

Prof. Dr. Poellmann and Maartin Broukmans chairing the Applied Mineralogy symposium.

Mineral liberation analysis using Bruker's high-speed EDS detectors was featured in some SEM vendors' booths with an application scientist showing how much more throughput can be achieved due to higher count rate capabilities.

Bruker's Handheld XRF was represented with its local distributor and internationally operating mining automation company, IMP (www.imp.co.za). A workshop titled *pXRF Solution for Geochemistry, Mining and Exploration* introduced the "No Compromise on Quality Data" approach to the community. Interested participants and word of mouth led to quite a few demos at the booth, since testing material was all around at the mineralogical show.

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