

On February 26, a new cabinet was announced, including new Ministers in DMR, DST and Water and Sanitation. It is uncertain whether or how policy changes will affect the earth sciences in industry, academia and government. Watch this space!

The Cape Town drought continues, with a good review of the situation in 22 Feb to 28 Feb issue of Financial Mail. It is well worth reading.

Plans for Geocongress are proceeding; for those who would like to pursue sponsorship opportunities see Geo Congress 2018 and click on 'Sponsorship and Exhibition Opportunities".









Continuing our series of quarterly talks, the next talk will be given by Professor Jan Kramers, of the University of Johannesburg, titled:

Hypatia and the mineralogy of interstellar space

Date: 27 March 2018

Time: 19h00

Venue: Department of Geology, Reading Room, University of Johannesburg

R.S.V.P.: <u>minsa@gssa.org.za</u> by 20th March by submitting number of persons attending and vehicle registration

Abstract:

The diamond-bearing stone named "Hypatia", found in 1996 in the desert in southwest Egypt by geologist Aly Barakat, was in 2013 (by argon analysis) shown to be of extraterrestrial origin. Neon isotopes indicate that it is a fragment of a bolide at least several m in diameter. Its chemical composition is unlike that of any known type of meteorite as it is carbon dominated. Petrographic work carried out at UJ by Dr Georgy Belyanin reveals that the carbonaceous matrix can contain up to several % iron and sulphur, and hosts sub-micron grains of iron sulphide. Diamond also occurs as sub-micron grains and was produced by shock. Exotic minerals, occurring as rare inclusions, are moissanite (silicon carbide), a nickel-phosphide compound of a composition never observed before, and metallic aluminium, iron, zinc and silver. These exotic minerals are thought to be pre-solar. No silicates or oxides have as yet been found in the matrix.

Raman spectroscopic analysis shows the presence of disordered carbon as polyaromatic hydrocarbons (PAH's) that have not been subject to metamorphism. Likewise, the non-annealed nature of the nickel phosphide compound shows that the material was never heated for any length of time. It is concluded that the stone comes from the outermost solar system.

A comparison with minerals and hydrocarbons observed by spectroscopy in interstellar space, and found in interplanetary dust particles and dust collected in space from comets, shows that PAH's are expected, but the absence of silicates in Hypatia is highly anomalous. It is concluded that the solar nebula originated from a heterogeneous interstellar cloud.

Brief biography of Professor Jan Kramers:

Jan Kramers is a Hollander who studied Geology and Physics in Bern, Switzerland and became an isotope geochemist during Postdocs at the BPI Geophysics at Wits (mentored by Hugh Allsopp) and at Leeds University during the 1970's. He spent the 1980's at the University of Zimbabwe, and became a professor of Geochemistry and head of the isotope geology unit at the university of Bern in 1991. In 2009 he took early retirement from there and moved back to South Africa where he was lucky to find post-retirement employment at the University of Johannesburg. He recently got an A rating from the NRF. He is married and has two daughters and four grandchildren.

## Call for members to join the Council of the International Geoscience Programme

The International Geoscience Programme (IGCP) has long been recognized globally amongst geoscientists as one of the most successful models for promoting international scientific cooperation in geosciences for individuals sharing a global vision for research. This joint-venture created 45 years ago by UNESCO and the International Union of Geological Sciences (IUGS) continues to provide opportunities for strong collaboration, capacity building for developing countries and recognition by international peers.

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For more info please click on: More information



GWD Field School 2018 Groundwater Field School

Pretoria March 2018

Wednesday 7th to Friday 9th March 2018

University of Pretoria

Please reply to: info@gwd.org.za





MATT MULLINS

## ECONOMIC EVALUATION OF MINERAL DEPOSITS

24 & 25 MAY 2018

Mining Precinct

## **KEY TOPICS**

- Global Valuation Codes
- Practical Financial Modelling
- The Critical Inputs
- Calculation and Use of Metrics
- Modelling Risk and Uncertainty
- Decision Analysis

## **ABOUT THE COURSE**

This short course will be of interest to Geologists, Mining Engineers and Project Managers who would like to understand financial modelling, how to apply the principles to their mine or project and how to make more efficient decisions.

Registration fee for two days Members - R3000, Non Members R3800, Academics/Students R1500 Numbers will be limited - info@gssa.org.za

Matt Mullins has 38 years experience in the Minerals Industry, as a Mining and Exploration Geologist with Gold Fields International, as Consulting Geologist for Rand Mines and as a Mining Analyst. Matt has detailed knowledge of Resource and Reserve Estimation, Valuation and Reporting in a number of commodities and jurisdictions. Practical examples will be drawn from his experience. Chairperson of SSC, GSSA Past President and Fellow, SAIMM Fellow, AusIMM Fellow



