



**IMA 2010
BUDAPEST**

BONDS AND BRIDGES

**THE 20TH GENERAL MEETING OF THE
INTERNATIONAL MINERALOGICAL ASSOCIATION**

**21–27 August 2010
Budapest, Hungary**



IMA2010 CONFERENCE NEWS

The daily newspaper of the 20th General Meeting of the International Mineralogical Association

THURSDAY

Today's Elements 5 talk

Nita Sahai: Mechanisms of cellular and biomacromolecular interactions with minerals in humans and animals

Mineral and medical sciences can successfully complement each other, as shown in today's Elements 5 talk. Medical mineralogy is the study of interactions between cells and biomacromolecules with minerals and aqueous solutions that are related to biomedical applications and human health.

Results of recent advances will be shown with the help of two case studies. The first study deals with the potential for using bioactive silicate glasses and ceramics (wollastonite, pseudowollastonite) in orthopaedic implants for bone-tissue engineering. As the implant dissolves in the body, at a rate determined by its crystal structure, it promotes rapid bone growth and, eventually, the complete replacement of the implant by newly-formed bone. In the second study, the potential role of acidic, non-collagenous proteins (ANCPs) in controlling the nucleation and growth of hydroxyapatite in bone biomineralization will be discussed.

In addition to these medically beneficial aspects of mineral interactions with the human body interactions, Nita Sahai (University of Wisconsin-Madison, USA) will also discuss examples of harmful mineralogical interactions.



From 12.20 to 13.00

Economic Geology

Related programme in the Northern Building:

8.30-10.30: Crustal fluids and gold 2 (N-A hall)
8.30-12.20; 16.50-18.30: Geo-metallurgy / Process mineralogy (N-F hall)

Keynote talk:

Schouwstra, R.P. & De Vaux, D. A.: A tale of two elements - the Gamsberg Zn study illustrating the importance of a geometallurgical approach

Related programme in the Southern Building:

8.30-10.30: Industrial clay deposits (S-D hall)

Keynote talk:

García-Romero, E. & Suárez, M.: Spanish sepiolite deposits

11.00-12.20; 16.50-18.30: Clays in oil and gas industry (S-D hall)

Theme of the day

Today's plenary talk

Frank Hawthorne (IMA Medallist 2009): Toward theoretical mineralogy: the bond-topological basis of structure stability and mineral energetics

One may express the energy density of status of a crystal in terms of its bond topology using the method of moments. This formulation provides a direct link between the energy of a structure and its bond topology.

In turn, this allows us to address some very basic questions concerning minerals: why do minerals have the chemical compositions they do, why some chemical compositions are stable (and occur as minerals) whereas others are not stable (and do not occur). Minerals reactions may be classified in terms of the conservation (continuous reactions) or non-conservation (discontinuous reactions) of bond topology, and the atomic-scale drivers of these reactions can be identified. Many other aspects of minerals, mineral reactions and crystallization can be examined at the atomic scale using this bond topological approach to the stability of atom arrangements.



From 16.00 to 16.50

MECC2010 began

Overlapping with the "second half" period of IMA2010, the 5th Mid-European Clay Conference began its scientific programme on Wednesday.



MECC2010 is a joint organisation with IMA2010, however, the clay science components of the latter are sponsored by MECC.





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G. Artioli

Mineralogy and archaeometry: fatal attraction

Cultural heritage related sessions began on Wednesday, and continue today. The keynote speaker of **Archaeometry (1)** general session was talking about challenges offered by the difficult relationship between archaeometry and mineralogy.

He emphasized the importance of the development of this multidisciplinary field with case studies. The use of different mineralogical/petrological non-invasive and (minimum-) invasive methods like XRD, TOF neutron diffraction, Raman spectroscopy and different ways of textural analyses were also shown.

Lecture from yesterday

Economic Geology

Ore deposit related research is strongly represented in the **I M A 2 0 1 0**

programme. Both leading societies of the field, **SEG** and **SGA** run also business meetings during the week.

Representatives of **SEG** and **SGA** were asked about connection between mineralogy and economic geology:



Theme of the day



Jeffrey Hedenquist, Lluís Fontboté, Douglas Kirwin (left to right)



Jan Pašava

JH: When you locate an interesting area, you can also use mineralogy to help find the centre of mineralization.

DK: The mineralogical aspect is also really important.

On the key challenge in economic geology nowadays:

DK: Educating the future generations...

JH: ...So we have trained, well-educated geologists, mineralogists. (...) Complete understanding of the mineralogy of ore deposits allows predictions on how they are going to react and you can plan ways to minimize the environmental impact.

LF: And that is why we, economic geologists are here in a mineralogical meeting.

I think that mineralogy and economic geology belong together very closely. None of these topics can stand alone. We, economic geologists couldn't live without mineralogy.

What we need to do is explain people how mineral deposits are important so they would realize they need them.

It is important to continue research on mineral deposits because our society cannot exist without studying mineral deposits. You can't even have a cell phone without having aluminium deposits studied.

Yesterday's Elements 5 talk

Yesterday's Elements5 lecturer was **Mihály Pósfai**, who proved that minerals are quite elemental factors in living organism.

He talked about a very exciting subject, the role of ferromagnetic nanocrystals (like magnetite) in organisms and the biological control on the properties of magnetite. His results may be relevant not only in geology but in biological and medical research as well. He gave evidence that synthesis of magnetite nanocrystals and electron holography studies can be quite useful in understanding microbiological processes.

"The most important thing in these kind of studies is co-operation between special geological and biological laboratories."



"It is very important to understand mineralogy for interpreting geological or even biological processes. It is like learning the alphabet." (Kyounghee Yang)

Yesterday's plenary talk #1

The audience was particularly interested in yesterday's talk about **Eyjafjallajökull** volcano in Iceland, and **Olgeir Sigmarsson** gave a detailed presentation on the details with a magnificent picture show.

As most of us followed the events since this spring, it was interesting to hear about the precursors of the eruption (which only occurred some days before the first eruption) and the final conclusions based on petrographical and geochemical studies of the freshly created volcanic rocks. He showed the proposed model of magma evolution and the surface processes that affected the eruptions.

"Europe was worried about the eruptions, Iceland was not so much. As you can see, this Icelandic boy is more interested in football (photo with the eruption cloud of the volcano in the background -editor's note)."



"It is important to study recent volcanic eruptions because they affect our lives directly, they cause changes in our environment and our health may also be affected." (Adrienn Szabadi)





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Wednesday - 25.08.2010 at IMA2010 - in pictures



; Donor wanted !



Please come to the Historical Mineral Hall, or send an e-mail to zsike@abyss.elte.hu and tell us the details about these specimens found without labels in the collection.

Pre- and Mid-Conference Field Trips



Participants of HU 1



Participants of HU 4



Participants of RO 4



HUSK1: This tree couldn't stop them; the team arrived to all the planned localities (see below).



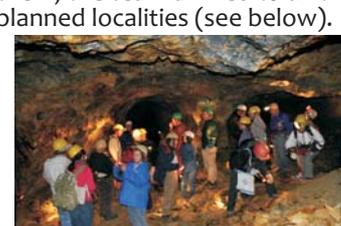
New samples (HU 1)



Explanation (AT 2)



Having rest (AT 3)



Yesterday's plenary talk #2

Large audience gathered at the plenary talk on Wednesday to hear Jonathan Lloyd's excellent presentation.

A rapidly developing area of a multidisciplinary science, the importance of understanding the critical role of mineral-microbe interface in controlling contaminant mobility was emphasized.



"Geomicrobiology will become a part of synthetic biology portfolio for catalysis and other 'white biotechnology' applications."



"Although this part isn't my field, this lecture was quite interesting for me. I think nano- and biotechnology will have big importance in the future." (Salvador Mandlane Junior, Mozambique)



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Leisure and pleasure at IMA2010

Social, music and sport events (Thursday, 26 August)

- 10.30-11.00: Gamba (classical music in the Northern Building)
- 13.15-13.45: Rozina Pátkai Trio (jazz music in the Northern building, or in case of nice weather, between the two buildings)
- 13.00-19.00: IMA2010 Basketball Shooting Challenge (at the northern entrance of the Northern Building)
- 13.00-20.00: IMA2010 Table Tennis (in the Southern Building)
- 13:15: Basketball Free Throw Championship (at the northern entrance of the Northern Building)
- 14.45-15.45: Hungarian folk music (in the Southern Building)
- 19.00-sunset: IMA2010 soccer games
- 20.00-22.00: GeoRock concert (in the Eötvös Collegium, Ménesi str. 11-13)

Information about the sport events, and registration for all of them will be at the Sport Help Desk

Leisure and pleasure at IMA2010

Sport at IMA2010

Among the talks and poster sessions sport events make the days more colorful. Two competitions happened yesterday; the IMA2010 Mini Duathlon and Running Race.



The winner of the Running Race was Axel Müller (Germany), while the winner of the Duathlon, Stefan Söllradl (Germany, see yesterday's newspaper) was the silver medallist in running (overall results). Markus Bauer achieved the third place, while the best women was Barb Duttrow (USA, overall 8. place).



Akos Horváth (physicist, Eötvös Loránd University), the organiser of the IMA2010 sport:

"Sport can bring us together. We found good friends during the soccer games, and got to know nice geologists during the campus run. That's how it works. It helps to build up a friendly community."

Traditional Hungarian Gulyás soup

Ingredients:

- 300g shank of beef
- 500g peeled potatoes
- 30g cooking fat, or vegetable oil
- 1 large onion, finely chopped
- 1/2 tsp powdered sweet paprika
- Salt to taste
- 1/2 tsp caraway seeds
- 3 or 4 black peppercorns
- 1 med. carrot, cut into quarters
- 1 med. parsnip, cut into quarters
- 1 or 2 whole sweet paprika
- 1 bay leaf
- 1 clove garlic, crushed

How to prepare:

Cube the meat and potatoes into 2cm pieces. Stew the onion over low heat until golden yellow (not brown). Add the paprika, meat (mix it while it becomes white), salt and 1,5 liters of water. Add the caraway seeds and peppercorns. After boiling, simmer for about half an hour. Add the carrots, garlic, leaf, parsnips and paprika peppers. When the meat is nearly tender (around another 30 minutes), add the potatoes. When every ingredients are tender, you're ready!

Culture corner

How is cheers! written in...

- German: Prost!
- Croatian: Nazdravlje!
- Czech: Na zdraví!
- Hungarian: Egészségedre!
- Polish: Na zdrowie!
- Romanian: Noroc!
- Slovakian: Na zdravie!
- Slovenian: Nazdarovlje!
- Serbian: живели!
- Bulgarian: наздраве

Voices of the IMA2010

- Chinese: 干杯
- Dutch: Proost!
- Finnish: Kippis!
- French: Santé!
- Hindi: Cheers!
- Icelandic: Skál!
- Italian: Salute!
- Japanese: 乾杯!
- Russian: на здоровье!
- Spanish: ¡Salud!

Daily news

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Gold miners

IMArt exhibition

Bazil Roman's photos on gold mining were taken between the end of the First World War and 1948. The photos reflect not only his passion and sympathy for his less-fortunate fellows, but reveal the historical part of the golden mining in the Apuseni Mountains (Romania) area.

Bazil Roman (1913-1993) is known as the photographer of gold mining in that area. Some of his best photos were selected for this exhibition dedicated to IMA2010 participants. The pictures are grouped according to the main activity depicted, such as washing the alluvial sand, underground mining activity, gold processing, etc.



Official communications

Changes in the oral programme

Please note that Mondlane S. et al. talk in EG55 (N-C) on Friday (11:20-11:40) is withdrawn and will be a poster in EG55_P05_N2.

Changes in the poster programme

Please note that there are two new poster contributions:
-In GP87C3: Rostási, Á., Raucsik, B. *Palaeoenvironmental controls on clay mineralogy of Carnian sections from the Transdanubian Central Range (Hungary)* under the code GP87C3_P09_S2.
-In CH31: Jroundi F., Rodríguez-Navarro C., Navarro J. V., González-Munoz M. T. *Substrate effects on stone bioconsolidation by bacterial carbonatogenesis* under the code CH31_P12_S2.