

## ZEOLITE CONFERENCE 2018

Sunday 24.06.2018

### 18.00 - 20.00 Welcome Coctail and Registration

AGH-UST, building A0 (number 7 on a map).

Monday 25.06.2018

Conference venue, AGH-UST building B-8 ( number 9 on a map)

### 9.00 – 9.15 Welcome speach

### 9.15 – 10.00 Invited lecture

Prof. Alessio Langella, Universita' del Sannio (Italy) - World production and use of natural zeolites: A critical review

### 10.00 – 11.00 Session 1 Chairmen: Aleksandra Dakovic, Hossein Kazemian

*Zeolite Formation and Occurrence*

1. D.T. Eyde - A review of 58 years in the US natural zeolite industry - Old markets and new opportunities
2. R.L. Brathwaite - Epithermal zeolite mineralization, Taupo Volcanic Zone, New Zealand
3. R. Ivanova, E. Stefanova, I. Peytcheva, M. Popov and A. Vlahov - Trace and rare earth elements in the zeolitized pyroclastics from Plazishte Formation (Eastern Rhodopes, Bulgaria)

### 11.00 – 11.45 Coffee break

### 11.45 – 12.45 Session 2 Chairmen: Alessio Langella, Athanasios Godelitsas

*Zeolite Formation and Occurrence*

1. R. Ivanova, N. Popov, T. Popova, D. Dimitrova, I. Sergeeva, L. Chiesa, K. Rujeva - Contribution to Bulgarian zeolite deposits - a tribute to Professor Hideo Minato
2. Khalil Rezaei - Detection and exploration sedimentary Zeolite deposits using Spectral Angle Mapper (SAM) method in Aftar area, Semnan province Iran
3. Jacek Engel - Some economic aspects of the applications of zeolite
4. Presentation - Zeolite Project Introduction of GuotouShengshi

### 13.15 – 14.00 Lunch

### 14.00 – 15.00 Session 3 Chairmen: Ognyan Petrov, Reinhard X. Fischer

*Zeolite Formation and Occurrence & Mineralogy of Natural Zeolites*

1. E.M. Olegario, F.J.T. Arellano, C.M.D. Cagomoc, A.P. Osonio, K.L.M. Taaca, M.R. Magdaleno, Jr. - Plasma treatment techniques for the functionalization of Philippine natural zeolite (PNZ)
2. E.M. Olegario, K.L.M. Taaca, A.M. Reyes, H.D. Mendoza - The effect of HCl and NaCl treatment as pre-conditioning step prior to functionalization of the Philippine natural zeolites (PNZ)
3. M.A. Hernández, G.I. Hernández, R. Portillo, M.A. Salgado, D. Santamaria, V. Petranovskii, E. Rubio - Nanoporosity and differential adsorption curves in clinoptilolite zeolites from Mexico

**Poster Session Monday 25.06.2018**

**1. Zeolite Formation and Occurrence**

- 1.1. H.S.O. Cosinero, M.T. Conato - FAU-type/ANA-type zeolite synthesis from Philippine bentonite
- 1.2. A.S. Radosavljević-Mihajlović, J. Stojanović, A. Došen, A. Šaponjić, A. Daković - Physicochemical properties of natural and synthetic zeolites modified by acid treatment
- 1.3. M. Król, P. Rožek - The effect of calcination temperature on metakaolin activity in zeolite synthesis

**3. Functionalization of Zeolite Surface**

- 3.1. L.T. Dimowa, O.E. Petrov, S.L. Petrov, S. Vladimirova-Atanasova, F. Ublekov - Structural comparison between Cs and Tl exchanged clinoptilolite after Rietveld refinements
- 3.2. D. Smiljanić, M. Mercurio, F. Izzo, B. De Gennaro, A. Daković, C. Germinario, C. Grifa, A. Langella - Emerging contaminants (ECs) and surface modified natural zeolites (SNMZs): A new promising environmental challenge
- 3.3. E.M. Olegario, A.M.Z. Reyes, J.C. Felizco, H. Nakajima, H.D. Mendoza - Synthesis and characterization of Philippine natural zeolite PNZ/CuO nanowire composites for hydrogen sulfide gas adsorption
- 3.4. R.R. Mukti, T. Puspitasari, G.T.M. Kadja, C.L. Radiman, D. Darwis - Amidoxime-functionalized natural zeolites hybrids applied for the removal of Pb<sup>2+</sup> ions in aqueous environment

**4. Applications in Engineering and Environmental Protection**

- 4.1. Nuić, M. Trgo, N. Vukojević Medvidović, M. Ugrina - Determination of the heavy metals concentration profile through the zeolite barrier in groundwater remediation
- 4.2. E. Chmielewska, H.B.I. Hawash, R. Górová, R. Sokolík - Purification of water contaminated with diclofenac and Zn(II) onto novel Fe-Mn binary oxide zeolite, Mn-zeolite and commercial product KlineCarb
- 4.3. N. Lihareva, L. Dimowa, O. Petrov, Y. Tzvetanova - Kinetics of Cs<sup>+</sup> uptake by clinoptilolite and Rietveld refinement of the way of occupation of the ion-exchange sites
- 4.4. M. Ugrina, N. Vukojević Medvidović, M. Trgo, I. Nuić, S. Slavica Matešić - Landfill leachate treatment using hybrid zeolite based processes
- 4.5. C.L.D. Neves Filho, F.B. Faria - Warmix-cel - an additive able to produce asphalt pavement at lower temperatures
- 4.6. M. Król, M. Cembala, P. Rožek - Sorption of Cd<sup>2+</sup> cations on synthetic zeolite aggregate
- 4.7. N. Lihareva, L. Dimowa, O. Petrov, Y. Tzvetanova, A. Nikolov, I. Piroeva - Kinetics of Cs<sup>+</sup> and Sr<sup>2+</sup> uptake by clinoptilolite from mix solutions – comparison with the single metal solutions
- 4.8. K. Brylewska, M. Król, W. Mozgawa - Post-synthesis modification of clinoptilolite. Kinetic studies of Cd<sup>2+</sup> sorption
- 4.9. K. Brylewska, M. Król, W. Mozgawa - Adsorption of inorganic anions on surfactant modified zeolite materials
- 4.10. S.A.O. Nadurata, E.M. Olegario, A.G. Dela Merced, E.J.A. Jabla, L.C.A. Ruiz, L.A.S. Valmores, E. Dela Paz - Surface functionalized Philippine natural zeolite (SM-PNZ) for arsenic adsorption in an aqueous solution
- 4.11. P. Kunecki, D. Czarna-Juszkiewicz, R. Panek, M. Wdowin - Zeolites as potential sorbents of toxic compounds in energetic sector

- 4.12. B. Samojeden, M. Morek, D. Duraczyńska, K. Zarębska, M. Kamienowska, M. Poddębiak, M. Motak - The application of modified vermiculites in Selective Catalytic Reduction NO by Ammonia (SCR-NH<sub>3</sub>)
- 4.13. M. Motak, K. Zarębska, M. Kamienowska, A. Mastalerz, B. Samojeden - Vermiculites modified with novel metals as catalysts in DeNO<sub>x</sub>
- 4.14. K. Zarębska, M. Kwiatkowski, M. Motak, N. Czuma, J. Szczurowski, P. Baran - Complementary numerical analysis of the carbon dioxide adsorption properties of vermiculit and fly ash zeolites obtained by various methods
- 4.15. G.C. Calabria, M.C. Shinzato, T.S. Martins - Bacteriological efficiency of natural zeolites treated with Zn and Ag as filter media

**Tuesday 26.06.2018**

**9.30 – 10.00 Invited lecture**

Prof. David L. Bish, Indiana University (USA) – „Water” in zeolites is not really water

**10.00 – 11.00 Session 4 Chairmen: Rositsa Ivanova, Marina Trgo**

*Mineralogy of Natural Zeolites & Functionalization of Zeolite Surface*

1. D. Comboni, G.D. Gatta, M. Merlini, P. Lotti, M. Hanfland - New insights into the crystal-fluid interactions in laumontite: A natural nanosponge
2. G. Cametti, S.V. Churakov - Framework modification and dehydration path of the Ag-exchanged form of stellerite (STI)
3. E.M. Olegario, C.M.O. Pelicano, L.A. Dahonog, N. Chanlek, H. Nakajima - Synthesis of 1-D ZnO nanostructures on Philippine natural zeolite (PNZ) via thermal decomposition process of a solution based precursor

**11.00 – 11.30 Coffee break**

**11.30 – 12.45 Session 5 Chairmen: David L. Bish, Reinhard X. Fischer**

*Functionalization of Zeolite Surface*

1. R.X. Fischer, A. Gadelmawla, J. Birkenstock, I. Spieß, L. Wang, L.A. Fischer - In-situ characterization and thermal decomposition behavior of ammonium-exchanged zeolites
2. M. Ugrina, N. Vukojević Medvidović, A. Daković, M. Marković, M. Trgo, I. Nuić, M. Mihajlović - The distribution and retardation coefficients as a tool in selection of low-cost sorbent as a material for permeable reactive barrier - SEM-EDS analysis
3. K.L.M. Taaca, E.M. Olegario, M.R. Vasquez - Thermal and sterility properties of pristine and plasma-treated silver-zeolite-chitosan composites
4. Sponsor Malvern/Panalytical

**13.00 – 14.00 Lunch**

**14.00 – 15.15 Session 6 Chairmen: Gerardo Rodríguez-Fuentes, Rositsa Ivanova**

*Functionalization of Zeolite Surface*

1. H. Kazemian, L. Kerr, J. Behin - Recent advances in natural zeolite sciences and technologies in Iran: reserves, research & development, applications
2. M. Marković, A. Daković, G.E. Rottinghaus, D. Krajišnik, J. Milić, M. Mercurio - Adsorption of mycotoxins by unmodified and modified phillipsite
3. A.M.Z. Reyes, E.M. Olegario, H.D. Mendoza - Surface modification of PNZ for the dechlorination of mine drainage wastewater
4. N. Sobuś, B. Michorczyk, M. Piotrowski, I. Czekaj - Nano-design of zeolites for selective conversion of biomass: process of lactic acid dehydration

**Poster session Tuesday 26.06.2018**

**5. Zeolites in agriculture and building materials**

- 5.1. F. Ferreira - Celfos: mineral product for the development of a sustainable agriculture
- 5.2. F. Ferreira - Biocel and Ecocel: natural organo mineral product compatible with organic production methods
- 5.3. Nikolov, H. Nugteren, O. Petrov, I. Rostovsky - Synthetic natural zeolite agglomerates - clinoptilolite-based geopolymers
- 5.4. K. Chakalov, T. Popova, V. Savov, G. Angelova, C. Metodieva, N. Agaim - Zeolite-containing plant rooting gel
- 5.5. T. Popova, K. Chakalov, V. Savov, G. Deleva - Influence of modified zeolites on the composting of wood waste
- 5.6. A. Wozzuk, W. Franus - Zeolite tuffs as a mineral filler in mix asphalts
- 5.7. M.A. Cinquini, A.W.P. Evangelista, V. Correchel, D. Casaroli - Potential use of zeolites in substrates for mutamba - *Guazuma ulmifolia* Lan. seedlings production's and irrigation variation
- 5.8. M.E. de Haro-Martí, M. Chahine, H. Neibling, L. Chen - Use of clinoptilolite in composting of dairy manure to reduce ammonia emissions and retain nitrogen

**6. Zeolite: catalysts and modern applications**

- 6.1. L. Dimitrov, O.E. Petrov, M.P. Tarassov, N. Lihareva - Perlites - attractive raw materials for synthesis of microporous phases with useful properties
- 6.2. M. Retajczyk, A. Wróblewska - Isomerization of limonene over natural zeolite- clinoptilolite
- 6.3. P. Miądlicki, A. Wróblewska, M.W. Malko - Isomerization of alpha-pinene over natural minerals and synthetic titanium-silicate catalysts - comparison of activity
- 6.4. M.W. Malko, A. Wróblewska, P. Miądlicki - Oxidation of R-(+)-limonene with hydrogen peroxide over vermiculite clay
- 6.5. M.W. Malko, A. Wróblewska, P. Miądlicki - Smectite nanoclays as catalyst in R-(+)-limonene oxidation process with hydrogen peroxide
- 6.6. M.W. Malko, A. Wróblewska, P. Miądlicki - Polish halloysite nanotubes as catalyst in R-(+)-limonene oxidation process with hydrogen peroxide
- 6.7. E. Makuch, M. Retajczyk, A. Wróblewska, B. Michalkiewicz - Synthesis, characteristic and application in the isomerization process of limonene of high-order siliceous materials of SBA-16 type structure modified with titanium compounds
- 6.8. M.A.O. Arcilla, B.R.P. Dela Cruz, E.M. Olegario, S.A.O. Nadurata, E.L. Ferrer - Cation exchanged Philippine natural zeolite (PNZ) as an alternative catalyst in catalytic converter
- 6.9. J. Madej, R. Panek, M. Wdowin, W. Franus, N.M. Musyoka - Hydrogen Storage comparison of natural and synthetic zeolites
- 6.10. M. Chojnacka, J. Warchoń, P. Sobolewska - Effect of pH on the Cr(VI) sorption onto HDTMA-zeolites

**7. Zeolites in medicine**

- 7.1. D. Krajišnik, B. Čalija, Lj. Djekić<sup>1</sup>, V. Dobričić, A. Daković, M. Marković, J. Milić - Ibuprofen adsorption on a clinoptilolitic zeolitic tuff modified with cationic surfactant: direct method of composites preparation
- 7.2. J. Oyuntsetseg, A. Tsogtsetseg, R. Lkhagvajav, L. Tsogtzandan - Comparison of hematological and histological analysis of „Ervit” and „Litovit” in mice
- 7.3. L. Kerr, H. Kazemian - Modified Canadian natural zeolite for use in the removal of bacteria from contaminated drinking water

Wednesday 27.06.2018

**9.30 - 10.00 Invited lecture**

Prof. Athanasios Godelitsas, University of Athens (Greece) – Natural zeolite science: Past, present, and future

**10.00 – 11.00 Session 7 Chairmen: Panagiotis Misaelides, Piergiulio Cappelletti**

*Applications in Engineering and Environmental Protection*

1. N. Rajić, J. Milenković, J. Pavlović, S. Jevtić, I. Kaplanec, A. Rečnik, J. Hrenović - Study of the Serbian natural clinoptilolite in regard of its adsorptive, catalytic and antimicrobial applications
2. P. Sáez, A. Rodríguez, J.M. Gómez, E. Díez, I. Bernabé, C. Fraile - Strategic metal removal from aqueous media with an efficient natural zeolite.
3. S. Kondo, H. Kazemian, R. Thring - Removal of phosphate from contaminated lake water using a modified Canadian natural zeolite
4. P. Misaelides, S. Sarri, F. Noli, N. Kantiranis, A. Filippidis - Cesium sorption from hyper-alkaline aqueous solutions by a greek HEU-type zeolitic material

**11.00 – 11.30 Coffee break**

**11.30 – 13.00 Session 8 Chairmen: Athanasios Godelitsas, Jolanta Warchol,**

*Applications in Engineering and Environmental Protection*

1. I.H.P. Mendez, V.G.L. Vergara, J.R.B. Rosales, R.E.C. Diaz, A.K.E. Page, E.M. Olegario, C.I.L. Razo - Nitrogen reduction using Cu-PNZ type zeolite as intake air filter in a gasoline engine
2. L.S. Campbell, A. Dyer, O.M. Wilson, C. Williams - Scottish zeolites: compositions, analytical reference minerals, and the INZA-Euroclay field trip.
3. A. Wozzuk, J. Madej - Application of natural zeolites in asphalt foaming proces
4. T. Markiv, Kh. Sobol, O. Hunyak, R. Panek, M. Franus - The effect of zeolitic tuff on the properties of concretes

**13.00 – 14.00 Lunch**

**Thursday 28.06.2018**

**9.30 – 10.00 Invited lecture**

Prof. Jolanta Warchoł, Wrocław University of Science and Technology (Poland) - Chromate sorption onto HDTMA-modified clinoptilolite

**10.00 – 11.00 Session 9 Chairmen: David L. Bish, Linda Campbell**

*Zeolites in agriculture and building materials*

1. S. Doni, M. Gispert, E. Peruzzi, C. Macci, G.B. Mattii, D. Manzi, C.M. Masini, G. Masciandaro - Effect of zeolite on vineyard soil fertility
2. G. Rodríguez-Fuentes, L.A. Rivero González - NEREA Zeoponic Substrates: Positive and negative facts after 30 years of development
3. H. Taheri Soudejani, H. Kazemian, M. Heidarpour, M. Shayannejad, H. Shariatmadari, M. Afyuni - Study the effect of compost modified with natural zeolite on soil quality

**11.00 – 11.30 Coffee break**

**11.30 – 13.00 Session 10 Chairmen: Alessio Langella, Panagiotis Misaelides**

*Applications in Engineering and Environmental Protection*

1. T. Bajda, B. Muir, P. Nowak - Hybrid sorption properties of zeolites: Adsorption of As(V), P(V) and Cl<sup>-</sup> by clinoptilolite exchanged with Pb, Zn and Cd
2. G. Narin - Dehydration behaviour of natural zeolite and Na-exchanged form using in situ Temperature-Programmed Diffuse Reflectance Infrared Fourier Transform Spectroscopy

*Zeolite in medicine*

3. F. Izzo, M. Mercurio, P. Cappelletti, B. de Gennaro, A. Daković, C. Germinario, C. Grifa, D. Smiljanić, A. Langella - New insights on surface modified natural clinoptilolite-rich carrier for sorption and *in vitro* release of ibuprofen sodium salt
4. W. Dathe, T. Selvam, W. Schwieger, R.P. Baum - A comparative study of the physicochemical properties of natural zeolites from Cuba and Mexico for oral and topical applications in human beings
5. Erdem Ayvazoglu - Business Development Manager "Rota Zeolite Mining - A Global Supplier At a Glance"

**13.15 - 14.00 Lunch**

**14:00 - 15:00 INZA – meeting**

**15:30 – Meeting point in front of a venue for a participant who declared to go on a tour**

**17.10—18.45 Wieliczka Salt Mine visit, after transfer directly to Conference Dinner place**

**18.15 Meeting point in front of a venue for transfer to the Conference Dinner**

**19.30 -22.30 Conference Dinner [Zalesie Manor Complex]**

**Friday 29.06.2018**

**10:00 – 11.15 Session 11 Chairmen: Aleksandra Daković, Athanasios Godelitsas**

*Zeolite: catalysts and modern applications*

1. Krzyżanowski, A. Ślusarek, W. Staniuk, M. Motak, K. Zarębska, P. Baran, N. Czuma, M. Kwiatkowski - Catalytic And sorptive properties of silver-impregnated montmorillonite
2. N.M. Musyoka, J.Ren, H.W. Langmi, B. North, M. Mathe - Clinoptilolite derived templated carbon for hydrogen storage application
3. E.M. Olegario, L.V.A. Sayson, C.M. Pelicano, N. Chanlek, H. Nakajima, G.N. Santos - Electrochemical performance of metal oxide/Philippine natural zeolite (MOPNZ) nanocomposites for pseudocapacitor applications
4. M.A. Hernández, G.I. Hernández, R. Portillo, M.A. Salgado, D. Santamaria, V. Petranovskii, E. Rubio - Nanoporosity and differential adsorption curves in clinoptilolite zeolites from Mexico
5. L. Bandura, W. Franus - Application of natural and synthetic zeolites for selected petroleum derivatives removal

**11.30 – 11:45 Closing Ceremony**

**12.00 – Lunch**

**Saturday 30.06.2018**

**ZEOCEM Technical excursion**

7:00 a.m. – Kraków departure – meetingpoint : infront of the conference venue.

12:30 - 1:30 p.m. -Lunch for participants – hotel close to quarry / 8 km transfer by bus

1:30 p.m. - Presentation of a Quarry

3:30 p.m. - Light snacks for Guests before coming back, time for refreshment

4:00 p.m. – bus transfer to Kraków

9:00 p.m. – Arrival to Kraków

**Timetable can change due to bad traffic or other unexpected events.**