

WORKSHOP
on
LAYERED MATERIALS

September 15-19, 2015

Castle Hotel Třešť, Czech Republic

Organized by Jiří Čejka, Petr Nachtigall and Vítězslav Zima

SCIENTIFIC PROGRAM

September 15

Buses Prague-Třešť

19:30 **WELCOME PARTY**

September 16

Chair **W.J. Roth**

9:00-9:50 **PL1** Freund H.-J.
TWO-DIMENSIONAL SILICA: FROM CRYSTAL TO GLASS

9:50-10:10 **Op01** Zima V., Melánová K., Svoboda J., Beneš L., Bureš F.
OPTICALLY ACTIVE PUSH-PULL MOLECULES INTERCALATED INTO LAYERED PHOSPHATES AND PHOSPHONATES

10:10-10:30 **Op02** Brendlé J., Brendlé E.
INVERSE GAS CHROMATOGRAPHY AS A POWERFUL TOOL TO STUDY THE SURFACE PROPERTIES OF PRISTINE AND MODIFIED CLAYS AS WELL AS CLAY-POLYMER NANOCOMPOSITES

10:30-11:00 **Break – Poster Session I**

Chair **P. Eliášová**

11:00-11:20 **Op03** Arletti R., Mugnaioli R., Kolb U., Di Renzo F.
KAOTROPIC CATIONS AS TEMPLATES FOR LAYERED SILICATES

11:20-11:40 **Op04** Tsunoji N., Sadakane M., Sano T.
NOVEL LAYERED SILICATE HUS: APPLICATIONS FOR CATALYST, ADSORBENT AND POROUS MATERIAL

11:40-12:00 **Op05** Opanasenko M., Kim J.-C., Ryoo R., Shamzhy M.
DIMENSIONALITY OF ZEOLITES: IMPACT ON CATALYTIC BEHAVIOUR

12:00-14:00 **LUNCH**

Chair **V. Zima**

14:00-14:50 **PL2** Bojdys M.J.
2D OR NOT 2D? LAYERED FUNCTIONAL MATERIALS “BEYOND GRAPHENE”

14:50-15:10 **Op06** Selvam T., Inayat A., Schwieger W.
STRUCTURE, SYNTHESIS AND REACTIVITY OF LAYERED SILICATES AND LAYERED DOUBLE HYDROXIDES: A COMPARISON

15:10-15:30 **Op07** Demel J., Hyklová B., Lang K.
LAYERED NICKEL AND COBALT HYDROXIDE NANOSHEETS FOR ELECTROCHEMICAL APPLICATIONS

15:30-16:15 **Break – Poster Session I**

Chair **M. Opanasenko**

16:15-16:35 **Op08** Garnier A., Da Cruz Boisson F., Rigolet S., Brendle J., Bounor-Legaré V.
²⁹Si, ¹H AND ³¹P LIQUID AND SOLID-STATE NUCLEAR MAGNETIC RESONANCE AS POWERFUL TOOLS TO STUDY THE MECHANISM OF FORMATION OF ORGANIC-INORGANIC TALC LIKE HYBRIDS

- 16:35-16:55 **Op09** Lang K., Demel J., Hynek J., Kovář P., Pospíšil M., Taviot-Guého C.
STRUCTURE OF LAYERED ZINC HYDROXIDE INTERCALATED WITH DODECYL SULFATE ANIONS
- 16:55-17:15 **Op10** Wang Y., Ihiwakrim D., Delahaye E., Rabu P., Rogez G.
MICROWAVE-ASSISTED FUNCTIONALIZATION OF AN AURIVILLIUS PHASE: AN EASY APPROACH TO NEW FUNCTIONAL LAYERED PEROVSKITES
- 17:15-17:35 **Op11** Kikhtyanin O., Pospíšilová M., Kubička D.
ON THE POSSIBILITY OF FURFURAL CONVERSION BY CANNIZZARO REACTION OVER HYDROTALCITES
- 17:35-17:55 **Op12** Mori K., Yamashita H.
HYBRID PHOTOCATALYST COMBINED WITH METAL COMPLEX AND LAYERED MATERIALS FOR VISIBLE-LIGHT DRIVEN HYDROGEN PRODUCTION
- 19:00 **DINNER**

September 17

Chair **P. Nachtigall**

- 9:00-9:50 **PL3** **Sauer J.**
STRUCTURE AND REACTIVITY OF TWO-DIMENSIONAL ZEOLITES
- 9:50-10:10 **Op13** Chmielarz L., Kowalczyk A.
POROUS CLAY HETEROSTRUCTURES SYNTHESIS AND APPLICATIONS IN ENVIRONMENTAL CATALYSIS
- 10:10-10:30 **Op14** Kim J.-C., Lee S., Ryoo R.
SURFACTANT-DIRECTED NANOSPONGE ZEOLITE WITH UNIFORM MESOPORES SUPPORTING COBALT NANOPARTICLES AS A FISCHER-TROPSCH CATALYST

10:30-11:00 Break – Poster Session II

Chair **D. Kubička**

- 11:00-11:20 **Op15** Zelevák V., Halamová D., Popjaková E., Almáši M., Zeleváková A.
NANOPOROUS SILICA FOR BIOMEDICAL APPLICATIONS: DRUG DELIVERY USING PHYSICAL AND CHEMICAL STIMULI
- 11:20-11:40 **Op16** Menke M.
HIGH THROUGHPUT MEASUREMENT USING INFRARED MICROSCOPE
- 11:40-12:00 **Op17** Roth W.J., Kubů M., Gil B.
ORGANIC-DRIVEN RECONFIGURATION OF FERRIERITE LAYERS INTO ENERGETICALLY DISADVANTAGED CDO FRAMEWORK

12:00-14:00 LUNCH

14:00 **Guided Tour – Jindřichův Hradec**

19:00 **GARDEN PARTY**

September 18

- Chair M. Shamzhy*
- 9:00-9:50 PL4 Kitagawa S.
SOFT POROUS COORDINATION POLYMERS/METAL-ORGANIC FRAMEWORKS:
THEIR DYNAMIC STRUCTURES AND PROPERTIES
- 9:50-10:10 Op18 Inayat A., Schwieger W.
LAYER-LIKE FAU-TYPE ZEOLITES: EFFECT OF DIFFERENT ADDITIVES ON THEIR
MORPHOLOGY
- 10:10-10:30 Op19 Přech J., Čejka J.
POSTSYNTHESIS INTRODUCTION OF TITANIUM INTO ZEOLITE BASED
EPOXIDATION CATALYSTS
- 10:30-11:00** *Break – Poster Session II*
- Chair B. Gil*
- 11:00-11:20 Op20 Ochoa-Hernández C., Přech J., Čejka J., Feroso J., Hernando H., Jana P.,
Moreno I., Pizarro P., Coronado J.M., Serrano D.P.
MODIFYING PHYSICO-CHEMICAL PROPERTIES OF LAMELLAR AND PILLARED
ZSM-5 BY THE INCORPORATION OF MgO OR ZnO AND THEIR PERFORMANCE
IN CATALYTIC FAST-PYROLYSIS
- 11:20-11:40 Op21 Peral Á.I., Escola J.M., Přech J., Jana P., Serrano D.P.
CATALYTIC CRACKING OF LOW DENSITY POLYETHYLENE OVER PILLARED ZSM-5
ZEOLITES
- 11:40-12:00 Op22 Mazur M., Roth W.J., Čejka J.
SYNTHESIS AND CHARACTERIZATION OF UNFEASIBLE ZEOLITES
- 12:00-14:00 LUNCH
- Chair V. Zeleňák*
- 14:00-14:35 KN1 Shamzhy M.V.
TOP-DOWN SYNTHESIS OF ZEOLITIC LAYERS AND THEIR MANIPULATIONS
- 14:35-15:10 KN2 Millini R.
FROM 2D ZEOLITES TO HYBRID ORGANIC-INORGANIC MATERIALS
- 15:10-15:30 Op23 Firth D.S., Navarro-Rojas M., Morris S.A., Wheatley P.S., Morris R.E.
FURTHER APPLICATIONS OF THE ADORABLE PROCESS
- 15:30-15:50 Break
- Chair R. Millini*
- 15:50-16:10 Op24 Položij M., Nachtigall P.
INTERACTION OF IPC-1P LAYERS AND STRUCTURE-DIRECTING AGENT LEADING
TOWARDS A NEW ZEOLITE FRAMEWORK
- 16:10-16:30 Op25 Morris S.A., Wheatley P.S., Morris R.E.
ATOMIC PAIR DISTRIBUTION FUNCTION: AN INSIGHT INTO THE IPC SERIES
- 16:30-16:50 Op26 Bulánek R., Čičmanec P.
IMPACT OF PORE SIZE ON ADSORPTION OF N₂, CH₄ AND CO₂ ON
HYDROPHOBIC ZEOLITES PREPARED BY ADOR MECHANISM
- 16:50-17:10 Op27 Rybicki M., Sauer J.
ACIDITY OF TWO-DIMENSIONAL ZEOLITES: THEORETICAL APPROACH
- 17:10-17:20 Concluding Remarks
- 19:00 FAREWELL DINNER

POSTERS I

- P01** Beneš L., Melánová K., Svoboda J., Zima V., Růžička A.
STRONTIUM AND BARIUM PHENYLPHOSPHONATES AS HOST MATERIALS FOR INTERCALATION CHEMISTRY
- P02** Hernando H., Feroso J., Pizarro P., Coronado J.M., Serrano D.P., Přeč J.
CATALYTIC FAST-PYROLYSIS OF EUCALYPTUS WOODCHIPS OVER LAMELLAR AND PILLARED ZSM-5
- P03** Kowalczyk A., Chmielarz L.
VARIOUS ASPECTS OF POROUS CLAY HETEROSTRUCTURE (PCH) SYNTHESIS
- P04** Lee M., Seo Y., Jo C., Shin H., Ryoo R.
ULTRATHIN TITANIA NANOSHEETS DIRECTED BY RANDOM-GRAFT COPOLYMER AS A SOLID ACID CATALYST
- P05** Marszałek B., Strzempek M., Matoga D., Gil B.
LAMELLAR METAL-ORGANIC FRAMEWORKS FOR NEW DRUG DELIVERY SYSTEMS
- P06** Melánová K., Zima V., Svoboda J., Beneš L., Miklík D., Bureš F., Knotek P.
INFLUENCE OF THE SHAPE OF OPTICALLY ACTIVE MOLECULES BEARING 4-PYRIDYL TERMINUS ON THE PROPERTIES OF THEIR INTERCALATES
- P07** Nakatsuka K., Kuwahara Y., Mori K., Yamashita H.
PREPARATION OF CORE-SHELL CATALYST WITH HYDROPHOBIC SURFACE AND ITS CATALYSIS FOR ONE-POT OXIDATION
- P08** Navrátil J., Svoboda J.
EXFOLIATION OF TETRADYMITE-LIKE COMPOUNDS - A COMPARATIVE STUDY
- P09** Pšenička M., Pospíšil M.
INTERCALATION OF PRAVASTATIN DRUG INTO LDH IN WATER ENVIRONMENT - MOLECULAR SIMULATION STUDY
- P10** Shin H.S., Jo C., Ko S.H., Ryoo R.
MESOPOROUS TITANIA WITH ANATASE FRAMEWORK SYNTHESIZED USING POLYPHENOLIC STRUCTURE-DIRECTING AGENT
- P11** Svoboda J., Melánová K., Zima V., Beneš L., Vlček M.
PROTONIC CONDUCTIVITY OF LAYERED TETRAVALENT METAL SULFOPHENYLPHOSPHONATES
- P12** Trachta M., Rubeš M., Bludský O.
MODELING OF SURFACE PROPERTIES OF LAYERED MATERIALS
- P13** Vaculík J., Setnička M., Čičmanec P., Bulánek R.
ACIDITY OF PILLARED HIERARCHICAL ZEOLITES PROBED BY TEMPERATURE PROGRAMMED DESORPTION OF AMMONIA
- P14** Škoda J., Pospíšil M.
MOLECULAR SIMULATIONS OF Zr DERIVATIVES CONTAINING SULFOPHENYLPHOSPHONATES

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- P15** Evrard Q., Taviot-Guého C., Roger M., Jaffrès P.-A., Delahaye E., Rabu P., Rogez G.
FUNCTIONALIZATION OF LAYERED SIMPLE HYDROXIDES BY FLUORENE-PHOSPHONATES:
TOWARDS LUMINESCENT LAYERED MAGNETS
- P16** Purova R., Schwieger W.
POROUS SYSTEMS BASED ON MWW-TYPE MATERIALS: PREPARATION AND CHARACTERISATION
- P17** He J., Morales-García Á., Bludský O., Nachtigall P.
STABILITY AND REACTIVITY OF NICKEL PHOSPHIDE BY MEANS OF AB INITIO ATOMISTIC
THERMODYNAMICS AND CONCEPTUAL DFT
- P18** Ho T.V., Nachtigall P.
BRØNSTED ACID INVESTIGATION IN CONVENTIONAL AND HIERACHICAL MCM-22 AND UTL
ZEOLITES
- P19** Morsli A., Arletti R., Bengueddach A., Di Renzo F.
CHEMICAL CONDENSATION OF LAYERED PRECURSORS TO MWW
- P20** Thanh Dong N., Kikhtyanin O., Kubička D.
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WITH ACETONE IN BIOMASS UPGRADING
- P21** Marler B., Müller M., Gies H.
STRUCTURE AND PROPERTIES OF ITQ-8, A HYDROUS LAYER SILICATE WITH POROUS SILICATE
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- P22** Marler B., Grünwald-Lüke A., Gies H.
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- P23** Korzeniowska A., Gil B., Roth W.J., Marszalek B.
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- P24** Klika Z., Seidlerová J., Svačinová A., Kolomazník I.
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- P25** Jiang Y.-C., Chiu M.-S., Chen J.-J., Lin C.-H.
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- P26** Senthil Raja D., Lin P.-C., Liu W.-R., Zhan J.-X., Lin C.-H.
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- P28** Eliášová P., Mota F.M., Jung J., Ryoo R.
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September 19

9:00 DEPARTURE TO PRAGUE

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