

*Twelfth International Symposium  
on Heterogeneous Catalysis  
Catalysis: a motor of economy  
26–29 August 2018  
Park Hotel Moskva, Sofia, Bulgaria*



*Programme*



**Process Integral  
Development S.L.**



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Maya SANDOVA, Institute of Catalysis, Sofia  
Maya SHOPSKA, Institute of Catalysis, Sofia

The organisers are grateful to Bulgarian National Science Fond (ДПМНФ 01/6), PID ENG&TECH, AQUACHIM, and ACM2 for financial support

**Time schedule**  
(as of 15<sup>th</sup> August 2018)

**Sunday, 26<sup>th</sup> August 2018**

10.00–19.00 Registration and information

Europe Hall

17:30–17:45 Opening ceremony

17:45–18:30 Invited lecture: K. Hadjiivanov

18:30–19:15 Invited lecture: J.-L. Blin

19.30 Welcome reception at Forest restaurant (200 m away from Park Hotel Moskva)

**Monday, 27<sup>th</sup> August 2018**

08:30–17:30 Registration and information

Europe Hall

09:00–09:45 Invited lecture: G. Busca

09:45–10:30 Invited lecture: A. Pintar

10:30–11:00 Coffee break

11:00–11:45 Invited lecture: J. S. J. Hargreaves

11:45–12:25 Europe Hall and Conference 3 Hall: Oral contributions

12:30–13:30 Lunch at Moskva restaurant

13:30–15:30 Europe Hall and Conference 3 Hall: Oral contributions

15:30–16:00 Coffee break

16:00–17:30 Poster session

17:45 Sofia sightseeing tour (start at Park Hotel Moskva)

**Tuesday, 28<sup>th</sup> August 2018**

08:30–19:30 Registration and information

Europe Hall

09:00–09:45 Invited lecture: V. I. Parvulescu

09:45–10:30 Invited lecture: J. Sauer

10:30–11:00 Coffee break

11:00–11:45 Invited lecture: W. Shen

11:45–12:25 Europe Hall and Conference 3 Hall: Oral contributions  
12:30–13:30 Lunch at Moskva restaurant  
13:30–15:50 Europe Hall and Conference 3 Hall: Oral contributions  
15:50–16:20 Coffee break  
16:20–19:20 Europe Hall and Conference 3 Hall: Oral contributions  
20:00 Dinner (optional), bus at 19:30 h

**Wednesday, 29<sup>th</sup> August 2018**

08:30–19:00 Registration and information  
Europe Hall  
09:00–09:45 Invited lecture: R. Gläser  
09:45–10:30 Invited lecture: A. Giroir-Fendler  
10:30–11:00 Coffee break  
11:00–11:45 Invited lecture: M. Sinev  
11:45–12:45 Europe Hall and Conference 3 Hall: Oral contributions  
12:45–13:45 Lunch at Moskva restaurant  
13:45–15:45 Europe Hall and Conference 3 Hall: Oral contributions  
15:45–16:15 Coffee break  
16:15–18:15 Europe Hall and Conference 3 Hall: Oral contributions  
18:20–18:30 Closing ceremony

**Programme**  
(as of 15<sup>th</sup> August 2018)

**Sunday, 26<sup>th</sup> August 2018**

10.00–19.00 **Registration and information**

**Europe Hall**

17:30–17:45 **Opening ceremony**

17:45–18:30 **IL1-Invited lecture:** Revisiting ceria-NO<sub>x</sub> interaction: FTIR studies  
K. Hadjiivanov\*, M. Y. Mihaylov, E. Z. Ivanova, H. A. Aleksandrov, P. St. Petkov, G. N. Vayssilov

18:30–19:15 **IL2-Invited lecture:** Direct desulphurisation for HDS of diesel fuel catalysed by MoS<sub>2</sub> dispersed over ordered mesoporous titania  
J.-L. Blin\*, S. Brunnet, B. Lebeau, I. Naboulsi, L. Michelin, M. Bonne

19.30 **Welcome reception at Forest restaurant**

**Monday, 27<sup>th</sup> August 2018**

08:30–17:30 **Registration and information**

**Europe Hall**

09:00–09:45 **IL3-Invited lecture:** Structure-surface acidity relations on catalytic materials belonging to the SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> system  
G. Busca

09:45–10:30 **IL4-Invited lecture:** Recent approaches towards enhanced charge separation and visible light utilization in TiO<sub>2</sub> photocatalysis  
A. Pintar

10:30–11:00 **Coffee break**

11:00–11:45 **IL5-Invited lecture:** Ammonia synthesis with metal nitrides  
J. S. J. Hargreaves

**Oral contributions**

11:45–12:05 **O1:** Characterisation and activity studies on Ni-based pyrochlore catalysts for dry reforming of methane  
S. Bhattar, A. Krishnakumar, S. Kanitkar, A. Abedin, D. Shekhawat, D. J. Haynes, J. J. Spivey\*

12:05–12:25 **O2:** FTIR spectroscopy for the studies of catalysts and catalytic reaction mechanisms  
A. Tsyganenko

12:30–13:30 **Lunch at Moskva restaurant**

- 13:30–13:50 **O3:** Structural and acidic nature of phosphotungstic acid at the surface and in the bulk of silica: towards a heterogeneous catalyst for quinolones synthesis P. Kasinathan\*, E. M. Gaigneaux
- 13:50–14:10 **O4:** Stability of fly ash based Beta zeolite in hot liquid phase A. E. Ameh\*, C. P. Eze, E. Antunes, L. F. Petrik
- 14:10–14:30 **O5:** Investigation of the properties of Li<sup>+</sup>, Co<sup>2+</sup>, Mg<sup>2+</sup>, Al<sup>3+</sup> containing LDH prepared by mechanochemical route and used as support precursors for platinum containing catalysts L. N. Stepanova\*, O. B. Belskaya, A. V. Vasilevich, N. N. Leont'eva, O. N. Baklanova, V. A. Likhoholov
- 14:30–14:50 **O6:** Facile and green route for the synthesis of SFE borosilicate zeolite and its heteroatom-substituted analogue with promising catalytic performance Y. Luo, Z. Wang\*, S. Jin, B. Zhang, H. Sun, W. Yang
- 14:50–15:10 **O7:** CO<sub>2</sub> hydrogenation over ceria-supported Pd-Zn based catalyst S. F. Zaman\*, A. S. Malik, A. A. Alzahrani, M. A. Daous
- 15:10–15:30 **O8:** Elimination reactions: dehydration of alkyl cyclohexanols with hydronium ions P. H. Hintermeier, L. Milakovic, S. Eckstein, E. Baráth\*, J. A. Lercher

### Conference 3 Hall

#### Oral contributions

- 11:45–12:05 **O9:** Spatiotemporal operando DRIFTS study on NSR catalysts: comparative study on support materials H. P. Nguyen\*, J. Ampurdanés, A. Bansode, A. Urakawa
- 12:05–12:25 **O10:** Shell-isolated nanoparticle-enhanced Raman substrates for heterogeneous catalysis T. Hartman\*, B. M. Weckhuysen
- 12:30–13:30 **Lunch at Moskva restaurant**
- 13:30–13:50 **O11:** Photocatalytic degradation of dyes using mesoporous TiO<sub>2</sub>-based materials F. Jonas\*, I. Naboulsi, B. Lebeau, P. Gaudin, L. Michelin, M. Bonne, J. L. Blin
- 13:50–14:10 **O12:** Synthesis, characterisation and photocatalytic properties of WO<sub>3</sub>/hexagonal platelet graphite nanocomposites A. Y. S. Malkhasian\*, K. Narasimharao
- 14:10–14:30 **O13:** Ferrites modified with Ag nanoparticles for photocatalytic degradation of Malachite Green in aqueous solutions M. Tsvetkov\*, J. Zaharieva, M. Milanova

- 14:30–14:50 **O14:** TiO<sub>2</sub>-graphene nanocomposites: preparation, characterisation, and charge carrier transfer E. Kusiak-Nejman\*, D. Moszyński, A. Wanag, A. W. Morawski
- 14:50–15:10 **O15:** Bismuth silicate composite materials prepared *via* mechanochemical activation for photocatalytic applications Yu. Belik, A. Vodyankin\*, T. Kharlamova, O. Vodyankina
- 15:10–15:30 **O16:** Reduced graphene oxide supported monodisperse Ni-Pd core-shell nanoparticles as a highly efficient and reusable heterogeneous catalyst for the Suzuki-Miyaura coupling and C-H bond arylation reactions Ö. Metin\*, H. Kilic, M. Turgut, M. S. Yilmaz

15:30–16:00 **Coffee break**

### Europe Hall

16:00–17:30 **Poster session**

- P1:** Understanding the effect of preparation method and Y-doped ceria loading on the water-gas shift activity of alumina-supported gold catalysts T. Tabakova\*, I. Ivanov, R. Zanella, P. Petrova, J. W. Sobczak, W. Lisowski, Z. Kaszukur, G. Munteanu, L. Ilieva
- P2:** Characterisation and catalytic activity in CO oxidation of biogenic lepidocrocite layered on anodic alumina M. Shopska\*, D. Paneva, H. Kolev, G. Kadinov, J. Briančin, M. Fabián, D. Kovacheva, Z. Cherkezova-Zheleva, I. Mitov
- P3:** CO and VOCs oxidation over Pt-based catalysts supported on Ti- and Ce-modified SBA-15 mesoporous silica S. Todorova\*, M. Shopska, M. Ciobanu, G. Petcu, F. Papa, S. Somacescu, D. Culita, S. Preda, V. Parvulescu
- P4:** Pd-Co/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> catalysts supported on anodised alumina for complete oxidation of methane S. Todorova\*, B. Tzaneva, E. Uzunova, H. Kolev, G. Ivanov, A. Naydenov
- P5:** Electrocatalytic activity of electroless Ni-P alloy coating for hydrogen evolution reaction in acidic medium V. Chakarova\*, M. Monev
- P6:** Synthesis and properties of binary oxide V<sub>2</sub>O<sub>3</sub>+TiO<sub>2</sub> photocatalytic materials for waste water and air decontamination A. Eliyas\*, L. Dimitrov, V. Iliev, N. Kostova, E. Stoyanova
- P7:** Photocatalytic properties of CaTiO<sub>3</sub> in oxidative degradation of organic contaminants depending on the mechanochemical activation time A. Eliyas\*, I. Stambolova, V. Blaskov, K. Zaharieva, K. Milenova, D. Stoyanova, I. Avramova, L. Dimitrov



- P8:** Phthalocyanine-modified Au/TiO<sub>2</sub>/reduced graphene oxide: catalyst for photooxidation of oxalic acid under irradiation with visible light  
V. Iliev\*, A. Elias, D. Tomova
- P9:** Synthesis-gas production by reforming of methane over Pt-Ru- and Ni-Cu-based nanosized catalysts  
S. A. Tungatarova\*, G. Xanthopoulou, T. S. Baizhumanova, Z. T. Zheksenbaeva, M. Zhumabek, K. Kassymkan, R. Sarsenova, G. Kaumenova, Y. Aubakirov, B. Massalimova, K. Shorayeva
- P10:** Flameless catalytic combustion of the methane of natural gas  
Z. T. Zheksenbaeva, S. A. Tungatarova\*, T. S. Baizhumanova, R. O. Sarsenova
- P11:** Impact of catalyst composition and reduction pretreatment on the activity in CO<sub>2</sub> removal by methanation reaction  
M. Gabrovska\*, R. Edreva-Kardjieva, D. Nikolova, P. Tzvetkov, M. Shopska, L. Biljarska
- P12:** Simple synthesis of raspberry ketone and the analogues by heterogeneous catalysed hydrogen-borrowing C-C bond formation  
Y. Hori\*, Y. Akabayashi, T. Myoda, K. Toeda
- P13:** Structure-oxidation activity relationship of monometallic and bimetallic Pd-Au catalysts for complete benzene oxidation  
L. Ilieva\*, A. M. Venezia, P. Petrova, G. Pantaleo, L. F. Liotta, R. Zanella, Z. Kaszskur, Y. Karakirova, T. Tabakova
- P14:** Impact of ceria loading on the preferential CO oxidation over gold catalysts on Y-doped CeO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> supports  
P. Petrova\*, G. Pantaleo, R. Zanella, J. W. Sobczak, W. Lisowski, Z. Kaszskur, G. Munteanu, I. Yordanova, L. F. Liotta, A. M. Venezia, T. Tabakova, L. Ilieva
- P15:** Preparation, characterisation, and photocatalytic activity of boron-doped TiO<sub>2</sub>-CNTs nanocomposites  
V. B. Koli, J.-S. Kim\*
- P16:** Cobalt oxide catalysts for deep oxidation of ethanol using plasma-aided deposition over stainless steel sieves  
K. Jiráťová\*, P. Kšířová, M. Dvořáková, J. Balabánová, P. Topka, M. Čada, F. Kovanda
- P17:** Mechanochemically synthesised N-doped ZnO as catalysts for decolourisation of methyl orange and photodegradation of ciprofloxacin  
N. G. Kostova\*, M. Fabian, E. Dutkova, Y. Karakirova
- P18:** Modelling of ceria surface and nanoparticle models done by Y<sup>3+</sup> cations  
H. A. Aleksandrov, I. Z. Koleva\*, K. M. Neyman, G. N. Vayssilov
- P19:** DFT modelling of adsorption complexes of gas molecules on a Ni<sup>+</sup>-exchanged ZSM-5 zeolite  
I. Z. Koleva\*, H. A. Aleksandrov, G. N. Vayssilov
- P20:** Density functional modelling of iron species in ZSM-5 zeolite  
I. Z. Koleva\*, H. A. Aleksandrov, W. Pantupho, S. Loiha, G. N. Vayssilov

- P21:** A facile synthesis of bimetallic nickel-ruthenium alloy nanoparticles and their catalytic performance in the dehydrogenation of morpholine borane as a new hydrogen storage material  
B. Sundu\*, T. Karaca, H. Can, Ö. Metin
- P22:** A DFT study on stability of Pt-Re surface alloys  
A. Uzun\*, B. S. Çağlayan, A. E. Aksoylu
- P23:** Cobalt ferrite modified with Hf(IV) as a catalyst for oxidation of ethyl acetate  
M. Tsvetkov\*, J. Zaharieva, G. Issa, M. Nedialkov, M. Milanova, Z. Cherkezova-Zheleva, T. Tsoncheva
- P24:** Sepiolite-supported nickel catalysts for hydrogen production by ammonia decomposition  
S. F. Kurtoğlu\*, S. Sarp, S. Soyer-Uzun, A. Uzun
- P25:** Copper catalysts supported on ordered mesoporous alumina-carbon composites in NO reduction with CO  
N. Stoeva, I. Spassova\*, P. Georgieva, M. Khristova
- P26:** IR spectroscopic characterisation of Hf-MOF-808  
K. K. Chakarova\*, M. Y. Mihaylov, K. I. Hadjiivanov, R. R. R. Prasad, P. A. Wright, M. L. Clarke
- P27:** Synthesis, characterisation, and catalytic behaviour of Zr- and Ti-modified Pd/La-Ce-Al catalysts for methane combustion in presence of H<sub>2</sub>O and SO<sub>2</sub>  
R. Velinova\*, B. Drenchev, G. Ivanov, M. Shipochka, P. Markov, D. Nihtianova, M. Shopska, D. Kovacheva, S. Todorova, A. Naydenov
- P28:** Mechanochemical synthesis and catalytic properties of calcium tungstate  
M. Gancheva, R. Velinova\*, R. Iordanova, A. Naydenov
- P29:** Influence of the methods of preparation on the structure and catalytic activity of silver-modified Beta  
P. Konova\*, Pl. Nikolov, N. Kumar, A. Naydenov
- P30:** Copper-modified coal ash zeolites as heterogeneous catalysts for VOCs oxidation  
H. Lazarova\*, S. Boycheva, D. Zgureva, M. Popova
- P31:** Selective reduction of NO by NH<sub>3</sub> over Fe<sub>2</sub>O<sub>3</sub>-promoted V<sub>2</sub>O<sub>5</sub>-WO<sub>3</sub>/TiO<sub>2</sub> catalysts: significant suppression of N<sub>2</sub>O formation  
K. H. Yang, T. P. T. Nyguen, M. H. Kim\*
- P32:** Hydrodesulphurisation catalysts deposited from NiMo complexes onto gamma-alumina prepared mechanochemically  
L. Kaluža, K. Jirátová, G. Tyuliev\*, D. Gulková, R. Palcheva, M. Koštejn, A. Spojakina
- P33:** Studies on the photocatalytic decomposition of water pollutant using TiO<sub>2</sub>/reduced graphene oxide materials  
A. Wanag\*, E. Kusiak-Nejman, A. W. Morawski
- P34:** Naphthenes dehydroaromatisation and *n*-alkanes isomerisation over supported TMS catalysts  
Al. A. Pimerzin\*, A. I. Matveeva, A. A. Roganov, A. A. Pimerzin

- P35:** Effect of the magnesia in KCoMoS supported catalyst on selective hydrotreating of model FCC gasoline  
Yu. V. Anashkin\*, D. I. Ishutenko, P. A. Nikulshin, A. A. Pimerzin
- P36:** Distortions in IR spectra of adsorbed molecules caused by scattering  
R. Novikov, A. Tsyganenko\*
- P37:** From one-cation site model to binuclear cationic oxo-clusters in oxidative carbonylation of methanol over CuNaX zeolite  
A. A. Rybakov, I. A. Bryukhanov, A. V. Larin\*, G. M. Zhidimirov
- P38:** The use of ferroalloy production waste as a catalyst for oxidative process  
A. K. Tleulesov, Zh. K. Shomanova, R. Z. Safarov\*, V. V. Larichkin
- P39:** Nanosized K-modified transition metal sulphide catalysts for syngas conversion into alcohols and other oxygenates  
V. V. Maximov\*, V. S. Dorokhov, E. A. Permyakov, V. M. Kogan
- P40:** Green quaternisation of different N-heterocycles with 2-bromoethanol  
S. Minkovska\*, N. Burdzhiev, D. Radeva, T. Deligeorgiev
- P41:** CO and VOCs oxidation over alumina-supported Au-Cu-Mn catalysts: stability and poisoning resistance  
E. Kolentsova\*, D. Dimitrov, T. Tabakova, K. Ivanov
- P42:** Dry methane reforming on supported Ni-based catalysts promoted with Rh  
S. Damyanova\*, R. Palcheva, I. Shtereva, Y. Karakirova
- P43:** Photocatalytic degradation of paracetamol and chloramphenicol pharmaceuticals by Ln-modified ZnO photocatalysts  
N. Kaneva, A. Bojinova\*, K. Papazova, D. Dimitrov
- P44:** ANA-type zeolites synthesised from fly ash as CO<sub>2</sub> sorbent  
B. Barbov, Yu. Kalvachev\*
- P45:** Synthesis, characterisation, and catalytic properties of palladium nanoparticles stabilised by long alkyl chain N-heterocyclic carbene  
M. E. Günay\*, H. Arıcı, I. Zaier, Ö. Metin
- P46:** Highly efficient MgFe and Mg-Co-Fe mixed oxide catalysts for ammonia decomposition  
S. Podila, H. Driss, S. F. Zaman, A. M. Ali, F. Bannani, A. A. Al-Zahrani, M. A. Daous, L. A. Petrov\*
- P47:** Ammonia decomposition over citric acid chelated  $\gamma$ -Mo<sub>2</sub>N and Ni<sub>2</sub>Mo<sub>3</sub>N catalysts  
S. F. Zaman\*, L. Jalaloso, A. A. Al-Zahrani, M. M. Daous, L. A. Petrov
- P48:** Ethyl benzene oxidative dehydrogenation to styrene on Al-B and Al-B-Sb catalysts  
N. Pasupulety, A. A. Al-Zahrani, M. A. Daous, H. Driss, A. M. Ali, S. F. Zaman, L.A. Petrov\*
- P49:** Hydrothermally stable support materials for the conversion of biomass  
M. Schöneborn, P. Bussian, A. Malyschew\*, T. Harmening, K. Heidkamp, M. Kuhn

**P50:** Catalytic methanation of atmospheric CO<sub>2</sub> for renewable power-to-gas J. V. Veselovskaya\*, O. V. Netskina, A. G. Okunev

**P51:** Aging of Cu/SSZ-13 for NH<sub>3</sub> SCR in mixed lean conditions X. Auvray\*, A. Grant, B. Lundberg, L. Olsson

17:45 **Sofia sightseeing tour (start at Park Hotel Moskva)**

## Tuesday, 28<sup>th</sup> August 2018

08:30–19:30 **Registration and information**

### Europe Hall

09:00–09:45 **IL6-Invited lecture:** Graphenes: a great challenge as support and catalysts for organic reactions V. I. Parvulescu

09:45–10:30 **IL7-Invited lecture:** *Ab initio* quantum chemistry for understanding active site reactivity in zeolites J. Sauer

10:30–11:00 **Coffee break**

11:00–11:45 **IL8-Invited lecture:** Shape control of metal oxides for heterogeneous catalysis W. Shen

### Oral contributions

11:45–12:05 **O17:** Efficient production of 2,5-furandicarboxylic acid from an acetal form of 5-hydroxymethylfurfural with a CeO<sub>2</sub>-supported Au catalyst M. Kim, Y. Su, A. Fukuoka, E. J. M. Hensen, K. Nakajima\*

12:05–12:25 **O18:** Probing acid sites in solid catalysts with pyridine UV-vis spectroscopy M. E. Z. Velthoen\*, S. Nab, B. M. Weckhuysen

12:30–13:30 **Lunch at Moskva restaurant**

13:30–13:50 **O19:** R&D and industrial applications of SRIPT's ethylbenzene technology W. Yang, Z. Wang\*, H. Sun, B. Zhang

13:50–14:10 **O20:** Isobutanol conversion to propylene and butenes using catalysts based on MFI zeolites synthesised using microwave irradiation A. A. Karavaev\*, A. S. Loktev, A. G. Dedov

14:10–14:30 **O21:** Advantages of dual-bed system for co-processing a mixture of straight-run diesel and waste sunflower oil A. N. Varakin, A. V. Mozhaev, A. A. Pimerzin, A. V. Fosler, P. A. Nikulshin\*

- 14:30–14:50 **O22:** One-pot template-free synthesis of  $\text{WO}_3\text{-SiO}_2$  nanomaterials in supercritical  $\text{CO}_2$  as heterogeneous catalysts for alkene epoxidation Y. Tao\*, F. Picchioni, P. P. Pescarmona
- 14:50–15:10 **O23:**  $\text{PtSn}/\gamma\text{-Al}_2\text{O}_3$  catalyst for direct propane dehydrogenation A. M. Ali, M. B. Umar, S. Podila, N. Pasupulety, H. Driss, Y. Alhamed, A. A. Zahrani, M. A. Daous, L. A. Petrov\*
- 15:10–15:30 **O24:** Reconstruction of oxide supports upon influence of Pd adlayers using supercell slab models A. A. Rybakov, I. A. Bryukhanov, S. Todorova, R. Velinova, A. Naydenov, A. V. Larin\*, G. M. Zhidomirov
- 15:30–15:50 **O25:** Ni stabilised in  $\text{La}_2\text{Zr}_2\text{O}_7$ : a robust catalyst for  $\text{CO}_2$  recycling E. le Saché\*, L. Pastor-Pérez, D. Watson, A. Sepúlveda-Escribano, T. R. Reina
- 15:50–16:20 **Coffee break**
- 16:20–16:40 **O26:** Thermal stability investigation on Mo/MCM-22 and Mo/ZSM-5 catalysts Y. Liu\*, F. Kooli, A. Borgna
- 16:40–17:00 **O27:** Influence of the composition and morphology of bulk catalysts synthesised from mixed  $\text{Al}_2\text{O}_3$ -supported  $\text{MoWS}_2$  sulphides on their catalytic properties A. V. Mozhaev\*, M. S. Nikulshina, A. A. Sheldaisov-Mescheryakov, P. A. Nikulshin
- 17:00–17:20 **O28:** Coke oven gas hydrodesulphurisation N. Kaisalo\*, J. Kihlman, J. Palo, P. Jokimies
- 17:20–17:40 **O29:** Novel precursors in synthesis of  $\text{KCoMoS}$  catalysts for selective hydrotreating of FCC gasoline D. I. Ishutenko\*, Yu. V. Anashkin, P. A. Nikulshin
- 17:40–18:00 **O30:** The use of mixed  $\text{SiW}_1\text{Mo}_{11}$  heteropolyacid for preparation of  $\text{NiMoW}/\text{Al}_2\text{O}_3$  sulphide catalyst for co-hydrotreating of light cycle oil with straight-run gas oil M. Nikulshina\*, A. Mozhaev, A. Kokliukhin, C. Lancelot, C. Lamonier, P. Minaev, P. Nikulshin
- 18:00–18:20 **O31:** Direct conversion of syngas to olefins over a bifunctional catalyst  $\text{Cr-Zn}$  mixed oxide/SAPO-34: tailoring activity and stability by varying the  $\text{Cr/Zn}$  ratio V. P. Santos, A. C. Sandikci, G. Pollefeyt\*, D. Nieskens, D. Yancey, A. Kirilin, A. Chojecki, A. Malek
- 18:20–18:40 **O32:** Effects of support composition on the performance of nickel catalysts in  $\text{CO}_2$  methanation reaction W. Gac\*, G. Kolb, W. Zawadzki, M. Rotko, M. Greluk, G. Słowik, H. Pennemann, S. Neuberg

- 18:40–19:00 **O33:** Kinetics of syngas conversion to ethanol studied over silica-supported Rh catalysts J. Bauer\*, F. Schuster, R. Kraehnert, F. Rosowski
- 19:00–19:20 **O34:** Simultaneous methanation of carbon oxides on nickel-iron catalysts supported on ceria-doped gadolinia P. Frontera, A. Macario, A. Malara\*, V. Antonucci, V. Modafferi, P. L. Antonucci

### Conference 3 Hall

#### Oral contributions

- 11:45–12:05 **O35:** Modelling of transition metal species and their complexes in the pores of zeolites H. A. Aleksandrov\*, I. Z. Koleva, G. N. Vayssilov
- 12:05–12:25 **O36:** Modelling of stability and catalytic behaviour of platinum species deposited on ceria surface and nanoparticles G. N. Vayssilov\*, H. A. Aleksandrov, I. Z. Koleva
- 12:30–13:30 **Lunch at Moskva restaurant**
- 13:30–13:50 **O37:** Conversion of cellulose by heterogeneous catalysts A. Fukuoka\*, H. Kobayashi, A. Shrotri
- 13:50–14:10 **O38:** Glycerol etherification with isobutene for the production of fuel additives Ö. D. Bozkurt\*, N. Bağlar, S. Çelebi, A. Uzun
- 14:10–14:30 **O39:** Heterogeneous hydroconversion of biomass-derived  $\gamma$ -valerolactone over silica-supported Co catalyst M. R. Mihályi\*, G. Novodárszki, D. Deka, J. Valyon
- 14:30–14:50 **O40:** Low-temperature isomerisation-syncretisation conversion of a mixture of butane fraction with straight-run gasoline on anion-modified zeolite catalysts M. T. Mamedova, S. I. Abasov\*, S. B. Agaeva, D. B. Tagiev, A. A. Iskenderova, A. A. Imanova, E. S. Isayeva, A. R. Nasibova
- 14:50–15:10 **O41:** High temperature treatment of catalysts prepared by using the sol-gel method for higher activity of dimethyl ether direct synthesis K. Takeishi\*, T. Kishi
- 15:10–15:30 **O42:** Nonprecious bimetallic Ni-M/AlSBA-15 catalysts for semi-hydrogenation of phenylacetylene at near ambient condition L. Yang\*, Z. Zhou
- 15:30–15:50 **O43:** Base-free oxidation of 5-HMF derivatives by gold catalysts Q. Yuan\*, K. Hiemstra, T. G. Meinds, Z. Tang, L. Rohrbach, P. P. Pescarmona, H. J. Heeres, P. J. Deuss
- 15:50–16:20 **Coffee break**

- 16:20–16:40 **O44:** Insights into surface phase formation and reactivity of monolayer V<sub>2</sub>O<sub>5</sub>-MoO<sub>3</sub>/Al<sub>2</sub>O<sub>3</sub> catalysts for oxidative dehydrogenation of propane T. Kharlamova\*, K. Timofeev, V. Svetlichnyi, O. Vodyankina
- 16:40–17:00 **O45:** Hydrolysis of cellulose on alumina-, silica-, and titania-supported heterogeneous catalysts E. Kilic\*, V. Degirmenci
- 17:00–17:20 **O46:** Study of CO<sub>2</sub> adsorption on a commercial CuO/ZnO/Al<sub>2</sub>O<sub>3</sub> catalyst M. Smyrnioti, T. Steriotis, T. Ioannides\*
- 17:20–17:40 **O47:** Promotion of mesoporous nickel-alumina based catalysts by magnesium addition for reforming of waste gasification products L. Karam\*, N. El Hassan, F. Launay, P. Massiani
- 17:40–18:00 **O48:** Modifying the structure of red mud by simple treatments for high and stable performance in CO<sub>x</sub>-free hydrogen production from ammonia S. F. Kurtoğlu\*, S. Soyer-Uzun, A. Uzun
- 18:00–18:20 **O49:** Utilisation of a MOF-derived highly dispersed Fe-based catalyst in ammonia decomposition reaction Ö. Akarçay\*, S. F. Kurtoğlu, A. Uzun
- 18:20–18:40 **O50:** Mesoporous silica materials with different pore sizes and geometries used as Ni hosts for the catalytic dry reforming of methane O. Daoura\*, S. Daher, M.-N. Kaydouh, N. El Hassan, P. Massiani, F. Launay, M. Boutros
- 18:40–19:00 **O51:** Structural investigation of Au, Pt, and Pd effects on the properties of Ni/Al<sub>2</sub>O<sub>3</sub> as catalyst for methane dry reforming D. Banerjee, G. Pantaleo, A. Longo, F. Puleo, C. Aprile, X. Collard, A. Martinez-Arias, L. F. Liotta\*
- 19:00–19:20 **O52:** The effect of rapeseed oil and carbon monoxide on SRGO hydrotreating over sulphide CoMo/Al<sub>2</sub>O<sub>3</sub> and NiMo/Al<sub>2</sub>O<sub>3</sub> catalysts E. N. Vlasova\*, G. A. Bukhtiyarova, I. V. Deliy, P. V. Aleksandrov, A. A. Porsin, V. I. Bukhtiyarov

### Wednesday, 29<sup>th</sup> August 2018

08:30–19:00 **Registration and information**

#### Europe Hall

- 09:00–09:45 **IL9-Invited lecture:** Enhancing the accessibility of active sites in TS-1-based catalysts for the epoxidation of biodiesel R. Gläser

- 09:45–10:30 **IL10-Invited lecture:** Advanced researches on catalytic processing for air pollutant abatement A. Giroir-Fendler
- 10:30–11:00 **Coffee break**
- 11:00–11:45 **IL11-Invited lecture:** Oxygen activation and pathways in high-temperature catalytic oxidation M. Sinev
- Oral contributions**
- 11:45–12:05 **O53:** Oxidative dehydrogenation of ethanol by modified OMS-2 catalysts S. S. Dotsenko, V. A. Svetlichnyi, O. V. Vodyankina\*
- 12:05–12:25 **O54:** On the structure and active sites of protected Au clusters supported on CeO<sub>2</sub> D. Pichugina\*, N. Nikitina, M. Golosnaya, N. Kuz'menko
- 12:25–12:45 **O55:** Synthesis and catalytic performance of nanostructured Ag-doped lanthanum cobaltite catalytic thin films prepared by physical vapour deposition A. Billard, I. Kalaitzidou, P. Vilasi, Ph. Vernoux, P. Briois\*
- 12:45–13:45 **Lunch at Moskva restaurant**
- 13:45–14:05 **O56:** Microemulsion synthesis of catalyst for hydrogen production *via* oxy-reforming and membrane reactor water-gas shift F. Basile, S. Abate, A. Fasolini\*, G. Centi
- 14:05–14:25 **O57:** Promoted Re/Al<sub>2</sub>O<sub>3</sub> systems as sour water-gas shift catalysts D. Nikolova\*, R. Edreva-Kardjieva, H. Kolev, M. Gabrovska
- 14:25–14:45 **O58:** Magnetic and catalytic properties of Fe-Ni-Al oxide catalyst for hydrogenation of carbon dioxide Sh. F. Tagiyeva\*, E. H. Ismailov, E. E. Mamedov, R. J. Qasimov, N. M. Aliyeva
- 14:45–15:05 **O59:** Catalytic methanolysis of sodium borohydride Ç. Çakanyıldırım
- 15:05–15:25 **O60:** Catalytic aqueous-phase reforming of Fischer-Tropsch derived alcohols for hydrogen production I. Coronado\*, M. Stekrova, R. Karinen, R. Puurunen, M. Reinikainen, J. Lehtonen
- 15:25–15:45 **O61:** Ni<sub>x</sub>Zn<sub>1-x</sub> mixed ferrite-modified activated carbons from waste materials as catalysts for hydrogen production from methanol T. Tsoncheva\*, I. Genova, R. Ivanova, I. Spassova, D. Kovacheva, G. Issa, D. Paneva, D. Karashanova, M. Dimitrov, B. Georgieva, N. Velinov, I. Mitov, N. Petrov
- 15:45–16:15 **Coffee break**



- 16:15–16:35 **O62:** Atomically dispersed copper on ceria nanostructures for CO oxidation  
C. Papadopoulos, K. Kappis, J. Papavasiliou, J. Vakros, Y. Georgiou, Y. Deligiannakis, A. G. Chronis, M. M. Sigalas, G. Avgouropoulos\*
- 16:35–16:55 **O63:** Gold nanoclusters dispersed on hydrothermally prepared copper-cerium oxide for preferential CO oxidation reaction  
J. Papavasiliou
- 16:55–17:15 **O64:** Co<sub>3</sub>O<sub>4</sub>-MnO<sub>x</sub> oxides supported on mesoporous and hierarchical macro-mesoporous silicas for CO and VOC oxidation  
S. Todorova\*, P. Gaudin, H. Kolev, A. Naydenov, B. Lebeau, A. Dozeva, D. Filkova, I. Ivaniva, L. Vidal, L. Michelin, J.-L. Blin
- 17:15–17:35 **O65:** Mesoporous nanostructured copper-titanium-cerium mixed oxides as catalysts for ethyl acetate oxidation and methanol decomposition  
G. Issa\*, A. Mileva, I. Genova, D. Kovacheva, G. Atanasova, J. Henych, J. Tolasz, V. Štengl, M. Dimitrov, T. Tsoncheva
- 17:35–17:55 **O66:** Mixed oxides of cerium and manganese as catalysts for total oxidation of ethyl acetate  
M. Dimitrov\*, R. Ivanova, G. Issa, D. Kovacheva, J. Henych, M. Kormunda, M. Slušná, J. Tolasz, V. Štengl, T. Tsoncheva
- 17:55–18:15 **O67:** Complete partial hydrogenation selectivity on a commercial supported nickel catalyst coated with ionic liquids  
A. Jalal\*, A. Uzun

### Conference 3 Hall

#### Oral contributions

- 11:45–12:05 **O68:** Coal ash zeolites as heterogeneous catalysts for VOCs oxidation  
S. Boycheva, D. Zgureva, H. Lazarova, M. Popova\*
- 12:05–12:25 **O69:** Total oxidation of toluene over bimetallic (Cu, Fe) nanoporous silica catalysts  
Á. Szegedi\*, M. Popova, K. Lázár
- 12:25–12:45 **O70:** Pt/CeO<sub>x</sub>/ZrO<sub>x</sub>/Al<sub>2</sub>O<sub>3</sub> ternary mixed oxide DeNO<sub>x</sub> catalyst: surface chemistry and NO<sub>x</sub> interaction  
S. Andonova\*, A. S. Ok, N. Drenchev, E. Ozensoy, K. Hadjiivanov
- 12:45–13:45 **Lunch at Moskva restaurant**
- 13:45–14:05 **O71:** Polymeric dinuclear molybdenum(VI) complexes bearing  $\alpha$ -aminoacid donor ligands as catalyst precursors for the selective oxyfunctionalisation of fine chemicals  
I. Abdalghani, L. Biancalana, F. Ferella, F. Marchetti, M. Crucianelli\*

- 14:05–14:25 **O72:** Catalytic performance and reaction pathways of Cu/SiO<sub>2</sub> and ZnO/SiO<sub>2</sub> for dehydrogenation of ethanol to acetaldehyde M. Ohira, H. Liu, D. He, Y. Hirata, M. Sano, T. Suzuki, T. Miyake\*
- 14:25–14:45 **O73:** Rh-catalysed hydrogenation of amino acids to bio-based amino alcohols: tackling challenging substrates and application to protein hydrolysates A. Vandekerckhove\*, L. Claes, F. De Schouwer, C. Van Goethem, I. F. J. Vankelecom, B. Lagrain, D. E. De Vos
- 14:45–15:05 **O74:** Molecular approaches in investigating the role of internal donors in heterogeneous Ziegler-Natta catalysts A. K. Tomov\*, M. Clarembreau, S. Bettonville, G. J. P. Britovsek
- 15:05–15:25 **O75:** Catalytic hydrogenation of CO<sub>2</sub> into valuable products on heterogeneous iron-based catalysts N. D. Evdokimenko\*, A. L. Kustov, K. O. Kim, L. M. Kustov
- 15:25–15:45 **O76:** Critical surface parameters for the oxidative coupling of methane over Mn-Na-W/SiO<sub>2</sub> N. S. Hayek\*, N. S. Lucas, C. W. Damouny, O. M. Gazit
- 15:45–16:15 **Coffee break**
- 16:15–16:35 **O77:** Promoting effects of Re, Cl, and alkali metals in silver-catalysed ethylene epoxidation M. A. Salaev\*, O. V. Vodyankina
- 16:35–16:55 **O78:** Transfer hydrogenolysis of aromatic ethers promoted by bimetallic Pd/Co catalyst F. Mauriello, H. Ariga-Miwa, E. Paone\*, R. Pietropaolo, S. Takakusagi, K. Asakura
- 16:55–17:15 **O79:** The use of polymer-stabilised ruthenium(0) nanoparticles as catalyst in hydrogen generation from morpholine borane: a new and cost-effective hydrogen storage medium H. Can\*, Ö. Metin
- 17:15–17:35 **O80:** Influence of the preparation method on the catalytic properties of Mo-Fe-O/SiO<sub>2</sub> catalysts in selective oxidation of 1,2-propanediol D. Yu. Savenko\*, N. Yu. Velieva, N. V. Dorofeeva, A. S. Savel'eva, V. A. Svetlichnyi, O. V. Vodyankina
- 17:35–17:55 **O81:** A seeded-growth synthesis of monodisperse Ag/Pd core-shell nanoparticles and their catalytic performance in the dehydrogenation of ammonia-borane M. S. Yilmaz\*, T. Genez, Ö. Metin

## Europe Hall

18:20–18:30 **Closing ceremony**

## Notes



**12<sup>th</sup> International Symposium on Heterogeneous Catalysis**  
**Catalysis: a motor of economy, 26–29 August 2018, Sofia, Bulgaria**

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