13th International Symposium on Heterogeneous Catalysis

Catalysis innovations

First International Conference on Electron Magnetic Resonance Applications

1-5 September 2024
Bulgaria Hotel, Burgas, Bulgaria

Programme

As of 26th August 2024

Advanced research to sustainable industry

The organisers are grateful to Bulgarian National Science Fund by contract КП-06-МНФ/14/23.05.2024, Bulgarian Academy of Sciences, AQUACHIM JSC, Metrohm Bulgaria Ltd., ACM2 Ltd., RSR Ltd., Carl Zeiss GmbH, Labimex Ltd., and FOT Ltd. for financial support.

13th International Symposium on Heterogeneous Catalysis
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First International Conference on Electron Magnetic Resonance Applications
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Time schedule (as of 26th August 2024)

Sunday, 1st September 2024

15.00–20.00	Registration and information	

Monday, 2nd September 2024

08:00–18:00	Registration and information	

Symposium Hall

09:00–09:15	Opening ceremony	S. Todorova, D. Nikolova, D. Kubička
09:15–10:00	Invited lecture	D. Kubička
10:00–10:45	Invited lecture	E. Slavcheva
10:45–11:15	Coffee break	
11:15–11:45	Keynote lecture	M. Tsvetkov
11:45–13:00	Oral presentations (3)	M. Fabian, E. Encheva, C. Rosmini
13:00–14:00	Lunch break	
14:00–14:45	Invited lecture	G. Finkelshtain
14:45–15:35	Oral presentations (2)	D. Nikolova, Ali Can Kizilkaya
15:35–15:45	Carl Zeiss GmbH presentation	A. Tonchev
15:45–16:15	Coffee break	
16:15–18:15	Symposium poster session (11)	

Conference Hall

09:45–10:00	Opening ceremony	Y. Karakirova
10:00–10:45	Invited lecture	G. Jeschke
10:45–11:15	Coffee break	
11:15–12:00	Invited lecture	B. E. Bode
12:00–12:35	Keynote lecture	H. Vrielinck
12:35–13:00	Oral presentation	J. E. McPeak
13:00–14:00	Lunch break	
14:00–15:35	Conference poster session (12)	
15:35–15:45	Carl Zeiss GmbH presentation	A. Tonchev
19.00	Welcome reception at Bulgaria restaurant	

Tuesday, 3rd September 2024

08:30–14:00	Registration and information	

Symposium Hall

09:00–09:45	Invited lecture	Y. Kubota
09:45–10:30	Invited lecture	R. Gläser
10:30–11:00	Coffee break	
11:00–11:45	Invited lecture	V. Chihaia
11:45–12:45	Oral presentations (2)	M. Popova, S. Todorova

Conference Hall

09:00–09:45	Invited lecture	V. V. Khramtsov
09:45–10:30	Invited lecture	M. Huber
10:30–11:00	Coffee break	
11:00–11:35	Keynote lecture	I. Naydenova
11:35–12:50	Oral presentations (3)	L. Galazzo, Z. Asadi, J. Tarábek
12:50–13:00	Closing ceremony	Y. Karakirova
13:00–14:0	Lunch break	
14:15–19:00	Nesebar sightseeing tour	

Wednesday, 4th September 2024

08:30–18:00	Registration and information	

Symposium Hall

09:00–09:45	Invited lecture	M. Daturi
09:45–10:30	Invited lecture	I. Yakoumis
10:30–11:00	Coffee break	
11:00–12:00	Oral presentations (2)	Z. Zheleva, B. Stefanov
12:30–13:30	Lunch break	
14:00–16:00	Flash orals of poster presentations (5 min)	Students and young scientists
16:00–16:30	Coffee break	
16:30–18:30	Symposium poster session (39)	

19:00 Dinner at A-la-carte Bulgaria restaurant (optional)

Thursday, 5th September 2024

09:00–14:00 Registration and information

Symposium Hall

09:30–10:15	Invited lecture	L. Francesca Liotta
10:15–11:00	Invited lecture	D. Stratiev
11:00–11:30	Coffee break	
11:30–12:15	Keynote lecture	T. Tabakova
12:15–12:30	Closing ceremony	S. Todorova, D. Nikolova
12:30–13:30	Lunch break	

Programme
(As of 26th August 2024)

Sunday, 1st September 2024

15.00–20.00	**Registration and information**	

Monday, 2nd September 2024

08:00–18:00	**Registration and information**	

Symposium Hall

09:00–09:15	**Opening ceremony**	S. Todorova, D. Nikolova, D. Kubička
09:15–10:00	**sL1-Invited lecture**: The peculiar role of supports in hydrogenation of biomass-derived oxygenates	D. Kubička*, S. Dutta, B. Amin, J. Aubrecht, O. Kikhtyanin, K. Pacultová, A. Ruppert
10:00–10:45	**sL2-Invited lecture**: Bimetallic Ir-Sn catalysts with non-carbon catalytic support as oxide electrocatalysts for PEMEC	I. Boshnakova, D. Paskalev, G. Borisov, E. Lefterova, E. Slavcheva*
10:45–11:15	**Coffee break**	
11:15–11:45	**sK1-Keynote lecture**: The remarkable synergistic effect between perovskites and BiOBr for visible-light enhanced activation of peroxy compounds for organic pollutant degradation	M. Tsvetkov

Oral presentations

11:45–12:10	**sO1**: Structure related functional properties of complex oxides prepared via mechanochemical route	M. Fabian
12:10–12:35	**sO2**: Enhanced catalytic activation of peroxymonosulphate over $SmFeO_3$/CuO composite for antibiotics removal from water	E. Encheva*, M. Tsvetkov
12:35–13:00	**sO3**: Unveiling the synergistic effects of pH and Sn content for tuning the catalytic performance of Ni^0/Ni_xSn_y intermetallic compounds dispersed on Ce-Zr mixed oxides in aqueous-phase ethylene glycol reforming	C. Rosmini*, M. Pazos Urrea, E. Tusini, S Indris, D. Kovacheva, D. Karashanova, H. Kolev, A. Zimina, J.-D. Grunwaldt, M. Rønning, M. Dimitrov, M. Popova
13:00–14:00	**Lunch break**	

14:00–14:45	**sL3-Invited lecture**: Method for the synthesis of ammonia by electrochemically reducing reactive nitrogen-oxygen species formed from air	G. Finkelshtain

Oral presentations

14:45–15:10	**sO4**: Alkaline fuel cell HOR catalyst evolution from noble to non-noble, from idea to a scale-up product	D. Nikolova*, Y. H. Wijsboom, M. Gabrovska, N. Borchtchoukova, G. Finkelshtain
15:10–15:35	**sO5**: Selectivity optimization of cobalt-based catalysts for CO_2 utilization by alkali promotion: atomic scale insights from molecular modelling	A. Can Kizilkaya
15:35–15:45	**Company presentation**: ZEISS research innovative solutions in catalysis science	A. Tonchev
15:45–16:15	**Coffee break**	
16:15–18:15	**Symposium poster session**	

sP1: Effect of mechanical activation on processing of alumina-supported CoPd catalyst precursors for CO hydrogenation	M. Shopska, M. Fabian*, H. Kolev, K. Tenchev, G. Kadinov, K. Aleksieva
sP2: Heterogeneity of adsorption and reaction sites of oxide-supported (10%Co+0.5%Pd) catalyst surfaces in the course of the CO hydrogenation reaction	M. Shopska*, K. Tenchev, G. Kadinov
sP3: Enhancing alkaline oxygen evolution reaction performance through comparative N-doping of a waste fossil-derived Ni-Fe/activated carbon	C. Rosmini*, M. Dimitrov, D. Karashanova, H. Kolev, N. Velinov, M. Popova
sP4: Initial exploring of Ni- and Co-based coatings in hydrogen evolution reaction electrodeposited on different supports	V. Chakarova, Ts. Parvanova-Mancheva*, M. Gabrovska, D. Nikolova
sP5: Hydrogenation of renewable levulinic acid to γ-valerolactone on Ni-Cu sodalite zeolite catalysts prepared from fly ash	I. Dimitrov*, M. Dimitrov, Y. Mitrev, D. Kovacheva, D. Karashanova, S. Boycheva, N. Velinov, M. Popova
sP6: Catalytic properties of selenium and phosphorus ionic liquids heterogenised on algae-based biochar	I. Tankov*, L. Gonsalvesh, G. Kolchakova, Z. Mustafa, A. Ilieva, Y. Hristov
sP7: Conversion variation in a commercial vacuum residue hydrocracker investigated by intercriteria analysis and pilot plant tests	D. Stratiev*, I. Shishkova, I. Kolev, G. Palichev

sP8: Methane conversion to add-value compounds over transition metal cations in zeolites	J. Sobalska, K. A. Tarach, A. Kordek*, K. Mlekodaj, E. Tabor, K. Góra-Marek
sP9: MCR-ALS analysis for active species identification in alcohol to hydrocarbon process	A. Kordek*, K. A. Tarach, A. Walczyk, K. Góra-Marek
sP10: Coke assessment in spectroscopic and chromatographic studies of spent zeolite catalysts for ethylene oligomerization	O. Rogala*, K. Tarach, M. Smoliło-Utrata, J. Martínez-Triguero, F. Rey, K. Góra-Marek
sP11: Polystyrene cracking over commercial zeolites Y	O. Rogala*, K. A. Tarach, K. Góra-Marek

Conference Hall

09:45–10:00	**Opening ceremony**	Y. Karakirova
10:00–10:45	**cL1-Invited lecture**: Operando EPR and hyperfine spectroscopy in heterogeneous catalysis	J. Fischer, M. Agrachev, A. Ashuiev, D. Klose, G. Jeschke*
10:45–11:15	**Coffee break**	
11:15–12:00	**cL2-Invited lecture**: Investigating protein structure and function through paramagnetic substitution of natively bound metal ions	K. Ackermann, J. L. Wort, B. E. Bode*
12:00–12:35	**cK1-Keynote lecture**: Radiation defects in the radio-photoluminescence phosphor $Ba_3(PO_4)_2$:Eu	H. Vrielinck*, Z. T. Yang, D. Augulis, S. Khelifi, D. Van der Heggen, P. F. Sme, D. Poelman

Oral presentation

12:35–13:00	**cO1**: Investigating electronic structure in transition-metal containing carbon nitride materials	E. Shabratova, E. Kobeleva, A. Azoulay, M. Shalom, K. Lips, J. E. McPeak*
13:00–14:00	**Lunch break**	
14:00–15:35	**Conference poster session**	

cP1: Copenhagen pulse electron paramagnetic resonance facility	J. E. McPeak*, S. Piligkos
cP2: EPR spectroscopy in Gd(III) solvent extraction chemistry	M. Atanassova*, D. Yordanova, R. Kukeva, V. Kurteva
cP3: In situ EPR study of electrolyte solutions widely used in the research/development of lithium and sodium ion batteries	R. Kukeva*, M. Kalapsazova, R. Stoyanova

cP4: Endothelial dysfunction and preeclampsia: role of oxidative stress and antioxidant therapy	D. Kostadinova-Slavova, K. Petkova-Parlapanska, M. Angelova, R. S. J. Al-Dahwi, E. Georgieva, D. Nicheva, Y. Karamalakova, G. Nikolova*
cP5: Distinct biomarkers for early diabetic nephropathy diagnosis	K. Petkova-Parlapanska*, E. Georgieva, Y. Karamalakova, P. Goycheva, G. Nikolova
cP6: Comparative in vitro radical-scavenging potential of biopolymer and mineral micro/nano-formulations: an EPR spin-trapping approach	K. Petkova-Parlapanska, G. Nikolova, Y. Karamalakova, E. Georgieva, D. Georgieva*, S. Hristova, Z. Yaneva
cP7: An EPR investigation redox-modulating effect of silybum marianum (Milk Thistle) extract used as a dietary supplement in broilers	Y. Karamalakova*, V. Ivanov, S. Mansbridge, I. Whiting, S. Rose, G. Nikolova, V. Pirgozliev
cP8: Estimation of initially absorbed radiation dose in dried figs using EPR spectroscopy	K. Aleksieva*, Y. Karakirova
cP9: Effect of gamma irradiation on antioxidant activity of walnut phenolic and flavonoid content	K. Aleksieva*, R. Mladenova, Y. Karakirova, S. Taneva, P. Denev
cP10: EPR study of the effect of UV illumination on silver ion fixation in ZnO and TiO_2 sol-gel films and their photocatalytic efficiency	R. Mladenova*, D. Ivanova, N. Kaneva
cP11: Analysis of antioxidant properties of Bulgarian honeybee products	R. Mladenova*, K. Loginovska, N. Solakov
cP12: Application of amino acids for high-dosage measurements by electron paramagnetic resonance spectroscopy	V. Yordanova, Y. Karakirova*

Oral presentation

15:35–15:45	**Company presentation**: ZEISS research innovative solutions in catalysis science	A. Tonchev
19.00	**Welcome reception at Bulgaria restaurant**	

Tuesday, 3rd September 2024

08:00–14:00 **Registration and information**

Symposium Hall

09:00–09:45	**sL4-Invited lecture**: Enhancement of catalytic performance of zeolites with newer frameworks by controlling defect sites	Y. Kubota

09:45–10:30	**sL5-Invited lecture**: Heterogeneous catalysis in nanopores: the benefit of hierarchical pore systems	R. Gläser
10:30–11:00	**Coffee break**	
11:00–11:45	**sL6-Invited lecture**: Atomistic investigations of hydrogen diffusion in wurtzite-type zinc oxide nanowires	V. Chihaia*, D. A. Neacsu, V. Alexiev, A. Marcu

Oral presentations

11:45–12:15	**sO6**: Dual system for CO_2 capture and hydrogenation to methane based on the modified mesoporous silica prepared from rice husks	M. Popova*, I. Slavchev, S. Simeonov, M. Dimitrov, P. Shestakova, D. Kovacheva, G. Atanasova
12:15–12:45	**sO7**: Cobalt-based catalysts supported on porous materials for the complete oxidation of volatile organic compounds	S. Todorova*, B. Grahovski, R. Velinova, J.-L. Blin[3], L. Richaudeau, H. Kolev, I. Yordanova, K, Tenchev, A. Naydenov
12:35–13:00	**Oral presentation**: Cancelled	T. E. Tshabalala

Conference Hall

09:00–09:45	**cL3-Invited lecture**: In vivo molecular electron paramagnetic resonance spectroscopy and imaging of cancer	V. V. Khramtsov
09:45–10:30	**cL4-Invited lecture**: EPR approaches to intrinsically disordered proteins and metal-ion centres related to neurodegenerative disease	M. Huber
10:30–11:00	**Coffee break**	
11:00–11:35	**cK2-Keynote lecture**: EPR spectra of combustion-generated fine particulates	I. Naydenova*, O. Sandov, T. Petrova, Y. Karakirova

Oral presentations

11:35–12:00	**cO2**: EPR characterization of intrinsic disorder in the RNA-binding protein SRSF1	L. Galazzo*, N. Kociolek, M. Yulikov, F. Allain, G. Jeschke
12:00–12:25	**cO3**: Operando ESR investigation on defects of Al-doped ZnO support: from formation to reactivity	Z, Asadi*, C. P. Marshall, D. D. Muñoz, A. Trunschke, T. Risse

12:25–13:50	**cO4**: Reproducible research in electron paramagnetic resonance spectroscopy using R statistical language	J. Tarábek
12:50–13:00	**Closing ceremony**	Y. Karakirova

13:00–14:00 **Lunch break**

14:15–19:00 **Nesebar sightseeing tour**

Wednesday, 4th September 2024

08:30–18:30 **Registration and information**

Symposium Hall

09:00–09:45	**sL7-Invited lecture**: Operando IR spectroscopy for a greener catalysis and process enhancement	M. Daturi
09:45–10:30	**sL8-Invited lecture**: PROMETHEUS catalyst: the first ever copper-based automotive catalyst homologated for Euro6 application. Current and future challenges	I. Yakoumis

10:30–11:00 **Coffee break**

Oral presentations

11:00–11:30	**sO8**: Recycling and reuse of spent automotive catalysts: challenges and solutions	Z. Cherkezova-Zheleva*, M. L. Grilli, K. Sakkas, I. Yakoumis
11:30–12:00	**Oral presentation**: Cancelled	T. Kallio
11:30–12:00	**sO9**: Photoelectrochemical and photocatalytic activity of photodeposition-functionalized Ag/TiO_2 and MnO_x/TiO_2 thin films	B. I. Stefanov

12:30–13:30 **Lunch break**

14:00–16:00 **Flash orals of poster presentations (5 min)**

B. Grahovski, Ts. Lazarova, O. Dimitrov, K. Tumbalova, G. Theochari, P. Karakashkova, D. Ivanova, E. Petrova, G. Zarkova, Ts. Goshova, D. Nicheva, M. Sabeva, A. Vasileva, K. Ivanov, K. Mihaylova, O. Porodko, A. Neacsu, A. Lyuczkanova

16:00–16:30 **Coffee break**

16:30–18:30 **Symposium poster session**

sP12: Highly resistible RGO-supported palladium catalyst to sulphur dioxide and water vapour for low-temperature VOCs oxidation	R. Velinova, D. Kichukova, G. Atanasova, A. Naydenov, D. Kovacheva, I. Spassova*
sP13: Catalytic oxidation of VOCs over Co and Co-Mn oxides supported on hierarchically macro-mesoporous silica	B. Grahovski*, H. Kolev, K. Tenchev, S. Todorova, R. Velinova, G. Ivanov, A. Naydenov, J.-L. Blin , L. Richaudeau, B. Lebeau
sP14: Bimetallic Pd-Au and Pd-Ag nanoparticles supported on MCM-41, MCM-22, and Beta-11 as catalysts for BTEX complete oxidation	P. Konova, P. Nikolov, P. Petrova*, M. Anchina*, V. Zdravkova, O. Dimitrov, M. Shipochka, P. Markov, I. Stambolova, G. Ivanov, A. Naydenov
sP15: Structural and catalytic properties of MnO_x-CeO_2 oxides supported on SBA-15	Y. Karakirova*, B. Grahovski, R. Velinova, H. Kolev, I. Yordanova, K. Tenchev, A. Naydenov, S. Todorova
sP16: Co-modified SBA-15 catalysts for waste gases purification processes: effect of precursor	B. Grahovski, J.-L. Blin, B. Lebeau, A. Naydenov, R. Velinova*, D. Karashanova, L. Richaudeau, H. Kolev, L. Michelin, K. Tenchev, S. Todorova
sP17: Effect of preparation method on cobalt-modified SBA-15 catalysts for waste gas purification processes	G. Ivanov*, B. Grahovski, J.-L. Blin, B. Lebeau, A. Naydenov, R. Velinova, L. Richaudeau, H. Kolev, L. Michelin, K. Tenchev, S. Todorova
sP18: Catalytic combustion of VOCs and CO over noble metals supported on MCM-22 zeolite	P. Konova, P. Nikolov, R. Velinova*, O. Dimitrov, M. Shipochka, P. Markov, V. Zdravkova, D. Stoyanova, G. Ivanov, A. Naydenov
sP19: Application of graphene oxide as adsorbent for the removal of toluidine blue from aqueous solutions	P. Vassileva*, Ts. Lazarova, D. Kichukova, D. Voykova, D. Kovacheva, I. Spassova
sP20: Combined purification of methylene blue from aqueous media by adsorption and photocatalysis using 3D graphene-based material	P. Vassileva*, V. Tumbalev, D. Kichukova, D. Voykova, D. Kovacheva, I. Spassova
sP21: Photocatalytic activity of TiO_2 particles obtained by *Mentha Spicata*-mediated green synthesis	O. Dimitrov*, I. Stambolova, D. Stoyanova, K. Zaharieva, M. Shipochka, G. Avdeev
sP22: Photocatalytic degradation of azo dye using AB-PBI/plant-synthesized TiO_2 hybrid membranes	K. Zaharieva*, I. Stambolova, D. Stoyanova, I. Tsacheva, R. Mladenova, M. Shipochka, B. Barbov, S. Dimova, O. Dimitrov, H. Penchev

sP23: Ti-zeolite Y nanocomposites modified by Au and CeO_2 and their photocatalytic activity	G. Petcu, E. M. Anghel, F. Papa, I. Atkinson, A. Baran, S. Petrescu, S. Todorova*, V. Parvulescu
sP24: Investigation of $NiO/Pd/Al_2O_3$, $CuO/Pd/Al_2O_3$, and $CoO/Pd/Al_2O_3$ as catalysts for ozone decomposition and as photocatalysts	K. Milenova*, I. Avramova
sP25: Catalytic combustion of methane over Pd-modified La-Ce-Zr-Al catalyst	K. Tumbalova*, Z. Zlatanova, R. Velinova, M. Shipochka, P. Markov, D. Kovacheva, G. Ivanov, E. Vassileva, L. Mihaylov, S. Todorova, A. Naydenov
sP26: Composite carbon material with excellent adsorption properties toward CO_2 prepared by new one-step approach	Ts. Lazarova, D. Kichukova, G. Atanasova, D. Kovacheva*, I. Spassova
sP27: Ni^0 supported on biowaste-derived porous aluminosilicates for CO_2 methanation	G. Theochari*, C. Rosmini, D. Kovacheva, M. Dimitrov, P. Shestakova, V. Toteva, M. Popova
sP28: C-C coupling of 1-butanol over Mg- and Li-doped zeolite	R. Palcheva*, L. Kaluza, J. Moravcik, A. Lyutskanova, T. Petrova, V. V. Idakiev, G. Tyuliev, Y. Kalvachev
sP29: Ozone decomposition at ambient temperature over noble metals modified MCM-22 and MCM-41 catalysts	P. Konova, P. Nikolov, P. Karakashkova*, O. Dimitrov, M. Shipochka, P. Markov, V. Zdravkov, D. Stoyanova, A. Naydenov
sP30: M_xO_y/CeO_2 (M = Cu, Co, Fe, Ni) derived from Ce-MOFs as a highly efficient catalyst for light-assisted Fenton-like reaction for water purification	D. Gagashev*, D. Elenkova, M. Tsvetkov
sP31: Ruddlesden-Popper type perovskite La_2CuO_4 decorated active carbon as a Fenton-like catalyst for antibiotic degradation	P. Nikolov*, S. Stefanova, M. Tsvetkov
sP32: Enhanced heterogeneous photocatalysis for antibiotic degradation using ZnO nanostructured films co-catalytically modified with Pd/MnOx	D. Ivanova*, H. Kolev, N. Kaneva
sP33: Structure engineering of Ni/SiO_2 vegetable oil hydrogenation catalyst via CeO_2	M. Gabrovska, D. Nikolova, V. Radonjić, D. Karashanova, A. Baeva, Ts. Parvanova-Mancheva, P. Tzvetkov, E. Petrova*, G. Zarkova, J. Krstić
sP34: Catalytic ability of K- and Co-promoted oxo-Re and oxo-ReMo nanosized compositions for water-gas shift reaction	D. Nikolova, I. Ivanov, J. Vakros, M. Gabrovska, J. Krstić, P. Tzvetkov, E. Petrova, G. Zarkova*, T. Petrova, T. Tabakova

sP35: Synthesis and structural analysis of heat-generating cobalt-substituted magnetite nanoparticles with organic coatings	Ts. Goshova*, M. Ognjanović, M. Bošković, B. Dojčinović, S. Vranješ-Đurić, B. Antić
sP36: Electronic structure, magnetic properties, cobalt heating efficacy, and gadolinium-substituted magnetite nanoparticles	H. Kolev*, M. Ognjanović, M. Bošković, B. Dojčinović, S. Vranješ-Đurić, B. Antić
sP37: Pt-modified iron oxide magnetic nanoparticles for catalytic applications	I. Yordanova*, H. Kolev, S. Todorova, M. Shopska, Z. Cherkezova-Zheleva, N. Velinov
sP38: Combined EPR and Mössbauer investigation of soda-lime silicate glass-crystalline materials of high iron oxide concentration	I. Mihailova*, R. Harizanova, D. Paneva, Z. Cherkezova-Zheleva, R. Kukeva, R. Stoyanova, G. Avdeev, C. Rüssel
sP39: Dielectric properties of $Ce_{1-x}Gd_xO_{2-x/2}$ ceramics	D. Nicheva*, R. Harizanova, V. Boev, V. Ilcheva, N. Bozhanova, K. Kolev, O. Dimitrov, T. Petkova
sP40: Catalytic behaviour of materials prepared by reusing recycled spent automotive catalysts	B. Grahovski, M. Sabeva*, C. Papadopoulos, S. Todorova, H. Kolev, Z. Cherkezova-Zheleva, D. Paneva, A.-M. Moschovi, I. Yakoumis
sP41: Characterization of catalytic materials prepared by reuse of recycled Pt from spent automotive catalysts	M. Sabeva*, B. Kunev*, E. Encheva, A. Vasileva, K. Ivanov, M. Shopska, I. Christova, D. Paneva, A.-M. Moschovi, Z. Cherkezova-Zheleva, I. Yakoumis
sP42: Application of mechanochemistry in recycling platinum group metals from spent automotive catalysts	A. Vasileva*, K. Ivanov, Z. Cherkezova-Zheleva, I. Yakoumis, D. Paneva
sP43: Recycling of spent automotive catalysts and their reuse in CO oxidation reaction	K. Ivanov*, B. Grahovski, A. Vasileva, D. Paneva, S. Todorova, I. Yakoumis, Z. Cherkezova-Zheleva
sP44: SEM investigation of spent automotive catalysts for further PGM reuse	I. Piroeva*, B. Rangelov, S. Atanasova-Vladimirova, D. Paneva, F. Hodzhaoglu, I. Yakoumis, Z. Cherkezova-Zheleva
sP45: Thermal analysis of spent catalysts: a TG/DTG-DSC-MS investigation of thermal behaviour in different gas atmosphere	K. Mihaylova*, D. Paneva, V. Petkova, A.-M. Moschovi, Z. Cherkezova-Zheleva
sP46: Structure and morphology of high entropy oxides with spinel structure prepared via ball milling and their electrochemical properties	O. Porodko*, M. Fabián, H. Kolev, M. Zukalová

sP47: Development of photochromic spironaphthoxazine molecular systems as photocontrollable 'smart' detectors for metal ions	S. Minkovska*, V. Chihaia, A. Neacsu, G. Hadjichristov
sP48: Spirooxazine derivative DFT simulations and spectroscopic properties of solid powder and solvent solutions	A. Neacsu*, V. Chihaia, V. Alexiev, S. Minkovska
sP49: The effect of ion exchange of clinoptilolite as a soil on radish physiological response	A. Lyuczkanova*, T. Todorova, D. Ilkov, V. Velikova, Y. Kalvachev
sP50: Hydrogen production over nickel-based catalysts	S. Damyanova*, I. Stereva, M. Gabrovska, D. Nikolova, T. Petrova, A. Stanev

19:00 **Dinner at A-la-carte Bulgaria restaurant (optional)**

Tuesday, 5th September 2024

09:00–14:00 **Registration and information**

Symposium Hall

09:30–10:15	**sL9-Invited lecture**: Ni active phase and catalyst composition effect on hydrogen production by methane reforming and decomposition	L. Francesca Liotta
10:15–11:00	**sL10-Invited lecture**: Roles of catalyst and feedstock in optimizing performance of heavy oil conversion processes of fluid catalytic cracking and ebullated bed vacuum residue hydrocracking	D. Stratiev*, I. Shishkova, G. Argirov, R. Dinkov
11:00–11:30	**Coffee break**	
11:30–12:15	**sK2-Keynote lecture**: Support effects for the water-gas shift performance of gold-based catalysts	T. Tabakova
12:15–12:30	**Closing ceremony**	S. Todorova, D. Nikolova

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