2020 EFCATS Summer School

Engineering materials for catalysis

15-19 September 2020
Portorož-Portorose
Slovenia

PROGRAMME BOOKLET

2020 EFCATS Summer School

The 2020 Summer School of the European Federation of Catalysis Societies (EFCATS) will be held from 15-19 September 2020 in Grand Hotel Bernardin Convention Center in Portorož-Portorose, Slovenia. The event entitled "Engineering Materials for Catalysis" is organized jointly by the Section for Catalysis of the Slovenian Chemical Society and the Austrian Catalysis Society.

CONTENTS

OBJECTIVES

The 2020 EFCATS Summer School focuses on recent advances regarding synthesis, *in-situ* and *operando* characterization and applications of heterogeneous catalysts as well as multi-scale modelling of catalytic processes. Besides, the publication system and less competitive free discussions will be addressed at the meeting.

Master and doctoral students as well as early-stage researchers being involved in the above-mentioned topics are strongly encouraged to attend the event. Eleven worldwide known experts will deliver invited lectures. The participants will be able to present the results of their research work in the form of oral presentations or poster contributions. A virtual tour to the Elettra synchrotron in Trieste, Italy, will be organized as part of the 2020 EFCATS Summer School.

FORMAT

The 2020 EFCATS Summer School entitled"Engineering Materials for Catalysis" will last five days and will consist of invited lectures (90 min), oral presentations (15 min) and poster contributions. The papers were selected by the chairs, based on the innovative aspect and scientific level.

The Young European Catalysis Network (YEuCat; https://www.youngcatalysis.net) will contribute to the programme of the 2020 EFCATS Summer School.

Participants of the 2020 EFCATS Summer School will be able to attend scientific sessions of the 26th Annual Meeting of the Slovenian Chemical Society held in parallel at the Grand Hotel Bernardin Convention Center.

The official language of the event is English. Papers and other documents will be in English. No translation facilities will be provided.

TOPICS

The 2020 EFCATS Summer School will cover the following topics:

- advanced synthesis and characterization of heterogeneous catalysts
- *in-situ* and *operando* characterization
- synchrotron characterization
- materials for photocatalysis and electrocatalysis
- multi-scale modelling of catalytic processes
- communication in science (publication system and less competitive free discussions)

CHAIRS

Nataša Novak Tušar
National Institute of Chemistry, Ljubljana, Slovenia

Albin Pintar
National Institute of Chemistry, Ljubljana, Slovenia

Günther Rupprechter
TU Wien, Austria

VENUE

Grand Hotel Bernardin Convention Center
Obala 2, SI-6320 Portorož-Portorose, Slovenia

Phone: +386 5 690 70 00, Fax: +386 5 690 70 10
E-mail address: booking@h-bernardin.si • https://www.hoteli-bernardin.si/

Portorož-Portorose, the town on the Slovene riviera, is known for its climatic conditions beneficial to health and well being in general. The thermal baths, based on brine and saline mud, have very old tradition, starting in 13th century. In addition, the "Port of Roses" offers the visitors sandy beaches, the best equipped marina for yacht tourist, various sport activities and a lot of entertainment including the casino. Portorož-Portorose can be conveniently reached by air (Ljubljana, Trieste, Venice), by train (Koper, Trieste), by ship (Venice) and by road.

The 2020 EFCATS Summer School will be held at luxurious Grand Hotel Bernardin Convention Center, located in the St. Bernardin hotel and conference resort (see http://www.hoteli-bernardin.si/en/). The latter lies on a peninsula with lush Mediterranean flora, halfway between the medieval town of Piran-Pirano and the modern seaside resort of Portorož-Portorose. The bell tower of the remains of St. Bernardin's monastery from the 15th century stands as a proud reminder of the rich cultural past, and marks the centerpiece of the resort.

The convention center of the Grand Hotel Bernardin offers several multi-purpose rooms, state-of-the-art audiovisual and telecommunication equipment and experienced staff. All this as well as the exceptional location and services of the resort make convention center of the Grand Hotel Bernardin the ideal venue for business, scientific and social events, that can host up to 2600 persons.

Some pleasures at disposal include sandy and grassy beaches, windsurfing school, boats, sailing boats, indoor and outdoor swimming pools, fitness, scuba-diving school, boat marina, golf, tennis courts, boule lanes, basketball court, beach-valley court, bikes, exquisite national & fish food in several restaurants with perfect local wines, music & dance, casino and much much more.

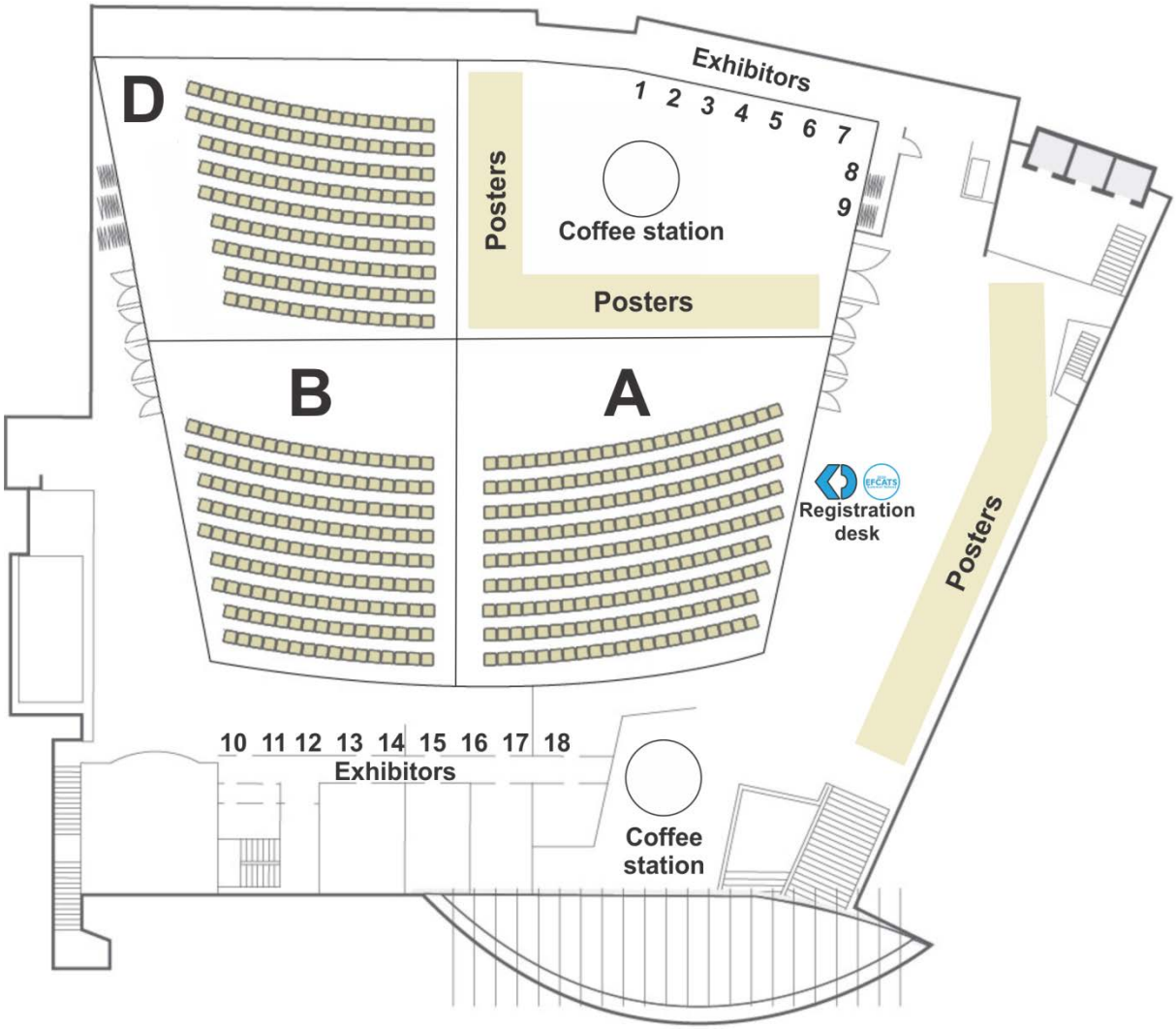
PROGRAMME AT A GLANCE

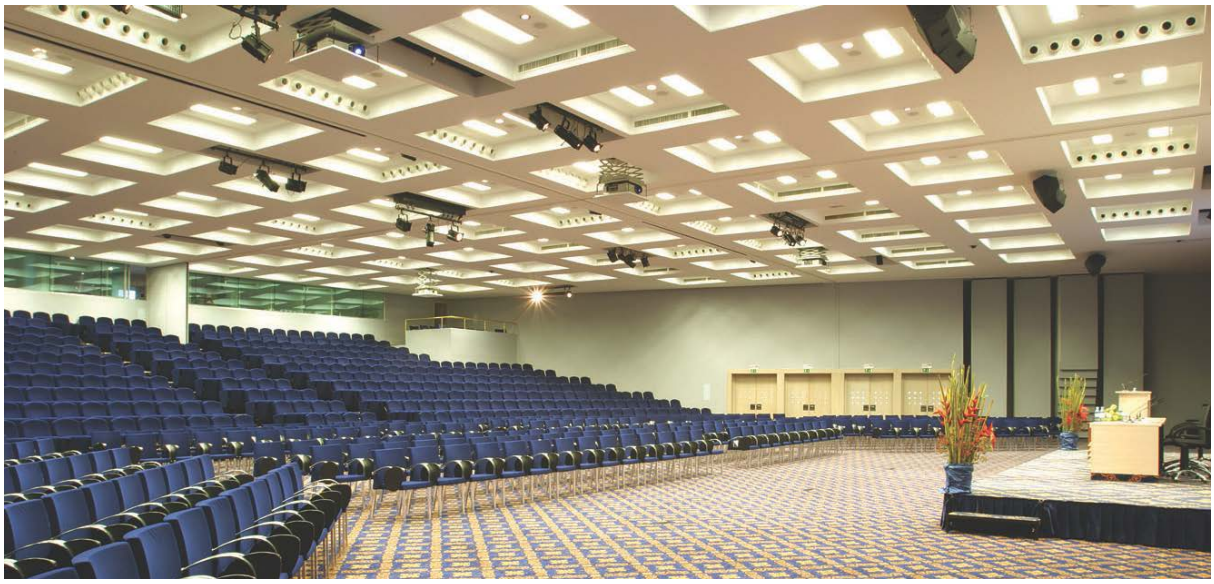
	Tuesday, 15 September 2020	Wednesday, 16 September 2020	Thursday, 17 September 2020	Friday, 18 September 2020	Saturday, 19 September 2020
08:00		Late registration			
09:00		Synthesis and characterization (B.-L. Su)	*Operando* studies (B.M. Weckhuysen)	Modelling (A. Genest)	Materials for photocatalysis (J.L. Faria)
10:00		Oral presentations	Oral presentations	Oral presentations	Oral presentations
		Coffee break	Coffee break	Coffee break	Coffee break
11:00		Synthesis and characterization (S. Mintova)	Synchrotron studies (G. Aquilanti)	Multiscale modelling (B. Likozar)	Materials for electrocatalysis (R. Buonsanti)
12:00		Oral presentations	Oral presentations	Lunch	Oral presentations
13:00		Lunch	Lunch		Closing remarks Take-away lunch
14:00				Free time	Departure
15:00		Free time	Synchrotron Elettra virtual excursion (J.R. Plaisier)		
16:00			Free time		
17:00	Registration	Poster session		Communication in science (S. Bordiga)	
18:00				YEuCat: a collaborative network	
19:00		Catalysis in industry (N. Nesterenko)			
20:00	Get-together party	Welcome reception	Gala dinner	Party	
21:00					
22:00					

To follow the programme of the 2020 EFCATS Summer School on mobile devices and schedule your agenda, you are invited to use the »Eventor« mobile app available for free in Google Play and iTunes App stores.

GROUND PLAN OF THE GRAND HOTEL BERNARDIN CONVENTION CENTER
(12th FLOOR)

EUROPA HALL





PROGRAMME

Tuesday, 15 September 2020

17:00 – 19:30	**Registration & welcome drink** *Foyer of the Grand Hotel Bernardin Convention Center (12th floor)*
20:00 – 22:00	**Get-together party** *Beach area of Hotel Vile Park*

SLOVENSKI KEMIJSKI DNEVI 2020
26th Annual Meeting of the Slovenian Chemical Society
16.-18. september 2020 • Portorož-Portorose, Slovenija

Participants of the 2020 EFCATS Summer School are able to attend scientific sessions of the 26th Annual Meeting of the Slovenian Chemical Society (https://skd2020.chem-soc.si/en/) held in parallel at the Grand Hotel Bernardin Convention Center from 16-18 September 2020.

Wednesday, 16 September 2020

8:00 – 8:30	**Late registration** *Foyer of the Grand Hotel Bernardin Convention Center (12th floor)*
8:20 – 8:30	**Opening** *Europa Hall D* Welcome address: Nataša Novak Tušar, Albin Pintar, Günther Rupprechter
8:30 – 10:30	**S1: Synthesis and characterization** Chair: **Nataša Novak Tušar** *Europa Hall D*
8:30 – 10:00	**Invited lecture** **From natural hierarchy law to hierarchically porous zeolite single crystals for green catalysis** Ming-Hui Sun, Li-Hua Chen, Bao-Lian Su *Laboratory of Inorganic Materials Chemistry, University of Namur, Belgium*
10:00 – 10:15 (online)	**Ligand engineering as a tool for heterogeneous gold nanocluster catalyst design** Vera Truttmann[1], Philipp Hans[2], Noelia Barrabés[1], Günther Rupprechter[1] *[1]TU Wien, Austria* *[2]University of Trento, Italy*
10:15 – 10:30 (online)	**Carbon black-polydopamine-ruthenium composite as an efficient and recyclable boomerang catalyst for the oxidative cleavage of oleic acid** Sebastián Gámez[1], Ernesto de la Torre[2], Eric M. Gaigneaux[1] *[1]Université catholique de Louvain, Belgium* *[2]Escuela Politécnica Nacional, Ecuador*
10:30 – 11:00	**Coffee break** *Foyer of the Grand Hotel Bernardin Convention Center (12th floor)*
11:00 – 13:00	**S2: Synthesis and characterization** Chair: **Nataša Novak Tušar** *Europa Hall D*
11:00 – 12:30	**Invited lecture** **Nanosized zeolites with flexible properties** Svetlana Mintova *LCS, CNRS, ENSICAEN, Normandy University-Caen, France*
12:30 – 12:45 (online)	**Nanoscale visualization of carbon deposits and magnesium clusters in zeolites active in the methanol-to-olefins process** Sophie Helena van Vreeswijk, Bert M. Weckhuysen *Utrecht University, The Netherlands*
12:45 – 13:00	***In-situ* DRIFTS to understand the mechanism of methane dry reforming over Ni/MnO_x doped CeO_2** Vikram Tatiparthi Sagar, Albin Pintar *National Institute of Chemistry, Ljubljana, Slovenia*

13:00 – 14:30	**Lunch** *Grand Restaurant (10th floor)*
14:30 – 16:30	**Free time**
16:30 – 18:30	**Poster session** *Foyer of the Grand Hotel Bernardin Convention Center (12th floor)*
18:30 – 20:00 (online)	**S3: Catalysis in industry** Chair: **Nataša Novak Tušar** *Europa Hall D*
	Invited lecture **Opportunities and challenges for zeolites in the energy transition** Nikolai Nesterenko *Total Research and Technology Feluy, Seneffe, Belgium*
20:00 – 22:00	**Welcome reception** *Cocktail Lounge and Piano Bar of the Grand Hotel Bernardin*

Thursday, 17 September 2020

8:30 – 9:25 (online)	**S4a: *Operando* studies** Chair: **Albin Pintar** *Europa Hall A* **Invited lecture** ***Operando* spectroscopy and microscopy of solid catalysts** Bert M. Weckhuysen *Utrecht University, The Netherlands*
9:30 – 10:30	**S4b: *Operando* studies** Chair: **Günther Rupprechter** *Europa Hall D*
9:30 – 10:00 (online)	**Invited lecture (online) - *continuation*** ***Operando* spectroscopy and microscopy of solid catalysts** Bert M. Weckhuysen *Utrecht University, The Netherlands*
10:00 – 10:15	**Revealing the dynamics of Sabatier reaction by IR thermography** Emanuele Moioli[1,2], Robin Mutschler[2], Andreas Zuttel[2] [1]*Paul Scherrer Institute, Villigen, Switzerland* [2]*EPFL, Sion, Switzerland*
10:15 – 10:30	**Effect of formaldehyde on selective catalytic reduction of NO_x by V_2O_5-WO_3/TiO_2 catalysts** Anh Binh Ngo, Thanh Huyen Vuong, Hanan Atia, Ursula Bentrup, Jabor Rabeah, Udo Armbrsuster, Angelika Brückner *Leibniz Institute for Catalysis, University of Rostock, Germany*
10:30 – 11:00	**Coffee break and poster viewing** *Foyer of the Grand Hotel Bernardin Convention Center (12th floor)*
11:00 – 13:00	**S5: Synchrotron studies** Chair: **Iztok Arčon** *Europa Hall D*
11:00 – 12:30	**Invited lecture** **Synchrotron radiation: what is it and what can it do for you?** Giulliana Aquilanti *Elettra - Sincrotrone Trieste, Italy*
12:30 – 12:45 (online)	**Towards the understanding of the direct methane to methanol reaction mechanism catalyzed by CeO_2/Cu_xO nanomaterial: an *operando* NEXAFS study** Silvia Mauri[1], Luca Braglia[1], Aleksandr Petrov[1], Giorgio Rossi[1,2], Piero Torelli[1] [1]*Laboratorio TASC, IOM-CNR, Trieste, Italy* [2]*Università di Milano, Dipartimento di Fisica, Italy*
12:45 – 13:00	**Sn K-edge EXAFS analysis of Sn-modified TiO_2 photocatalyst with improved performance** Ksenija Maver[1], Iztok Arčon[1,2], Urška Lavrenčič Štangar[3] [1]*University of Nova Gorica, Slovenia* [2]*Jožef Stefan Institute, Ljubljana, Slovenia* [3]*University of Ljubljana, Faculty of Chemistry and Chemical Technology, Slovenia*

13:00 – 14:30	**Lunch** *Grand Restaurant (10th floor)*
14:30 – 16:00	**S6: Synchrotron Elettra virtual excursion** Chair: **Iztok Arčon** *Europa Hall D*
	Invited lecture **Synchrotron Elettra virtual excursion** Jasper Rikkert Plaisier *Elettra - Sincrotrone Trieste, Italy*
16:00 – 20:00	**Free time**
20:00 – 23:00	**Conference dinner** *Terrace International of the St. Bernardin Adriatic Resort & Convention Center*

Friday, 18 September 2020

8:30 – 10:30	**S7: Modelling** Chair: **Günther Rupprechter** *Europa Hall D*
8:30 – 10:00	**Invited lecture** **Modeling reducible oxides with DFT - Challenges and solutions** Alexander Genest *TU Vienna, Austria*
10:00 – 10:15	**Data science tools for heterogeneous catalysis** Mohammad Khatamirad, Shahabedin Dayani *BasCat, Berlin, Germany*
10:15 – 10:30	**Reactor mass transport and surface microkinetics modelling of reverse water-gas shift on Cu-based catalysts** Damjan Lašič Jurković, Anže Prašnikar, Andrej Pohar, Blaž Likozar *National Institute of Chemistry, Ljubljana, Slovenia*
10:30 – 11:00	**Coffee break and poster viewing** *Foyer of the Grand Hotel Bernardin Convention Center (12th floor)*
11:00 – 12:30	**S8: Multi-scale modelling** Chair: **Günther Rupprechter** *Europa Hall D* **Invited lecture** **How can multi-scale modelling simulations help catalysis and engineering?** Blaž Likozar[1,2,3], Matej Huš[1], Miha Grilc[1], Andrej Pohar[1] [1]*Department of Catalysis and Chemical Reaction Engineering, National Institute of Chemistry, Ljubljana, Slovenia* [2]*Pulp and Paper Institute, Ljubljana, Slovenia* [3]*Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia*
12:30 – 14:00	**Lunch** *Grand Restaurant (10th floor)*
14:00 – 17:30	**Free time**
17:30 – 18:30	**S9: Communication in science** Chair: **Nataša Novak Tušar** *Europa Hall D* **Invited lecture** **Dissemination and communication in the daily work of a researcher** Silvia Bordiga *Department of Chemistry, University of Turin, Italy*
18:30 – 19:30	**YEuCat: a collaborative network** *Europa Hall D*
20:30 – 22:00	**Party** *Pizzeria Batana, Piran-Pirano*

Saturday, 19 September 2020

8:30 – 10:30	**S10: Materials for photocatalysis** Chair: **Albin Pintar** *Europa Hall D*
8:30 – 10:00	**Invited lecture** **Shining new light on ancient formulations: Preparation and photoproperties of carbon photocatalysts** Joaquim L. Faria *Department of Chemical Engineering, University of Porto, Portugal*
10:00 – 10:15 (online)	**Photocatalytic conversion of biomass to hydrogen and light hydrocarbons** Gabriele Scandura, Giovanni Palmisano, Jorge Rodriguez *Research and Innovation Centre on CO_2 and H_2, Khalifa University, Abu Dhabi, United Arab Emirates*
10:15 – 10:30 (online)	**The development of TiO_2-SnS2/GO-RGO nanocomposite photocatalytic material active under solar light irradiation** Klara Perović, Marijana Kraljić Roković, Marin Kovačić, Hrvoje Kušić *Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia*
10:30 – 11:00	**Coffee break** *Foyer of the Grand Hotel Bernardin Convention Center (12th floor)*
11:00 – 12:45	**S11: Materials for electrocatalysis** Chair: **Albin Pintar** *Europa Hall D*
11:00 – 12:30 (online)	**Invited lecture** **Colloidal chemistry for tunable and controlled electrocatalysts** Raffaella Buonsanti *EPFL, Sion, Switzerland*
12:30 – 12:45	**Nano-engineering a superior and cost-effective proton exchange membrane fuel cell catalyst** Matija Gatalo, Marjan Bele, Francisco Ruiz-Zepeda, Ana Rebeka Kamšek, Nejc Hodnik, Miran Gaberšček *National Institute of Chemistry, Ljubljana, Slovenia*
12:45 – 13:00	**Closing remarks** *Europa Hall D*
13:00 – 13:15	**Take-away lunch** *Foyer of the Grand Hotel Bernardin Convention Center (12th floor)*

POSTER SESSION

Foyer of the Grand Hotel Bernardin Convention Center (12th floor)

Wednesday, 16 September 2020 (16:30 – 18:30)
Thursday, 17 September 2020 (10:30 – 11:00)
Friday, 18 September 2020 (10:30 – 11:00)

P001 **Photocatalytic and thermal catalytic reduction of NO_2 on different TiO_2 substrates loaded with Pt**

Gregor Žerjav[1], Zafer Say[2], Christoph Langhammer[2], Albin Pintar[1]
[1]National Institute of Chemistry, Ljubljana, Slovenia
[2]Department of Physics, Chalmers University of Technology, Gothenburg, Sweden

P002 **Photoluminescence determination of hydroxyl radical formation rate: terephthalic acid versus coumarin**

Gregor Žerjav[1], Alen Albreht[2], Irena Vovk[2], Albin Pintar[1]
[1]Department of Inorganic Chemistry and Technology, National Institute of Chemistry, Ljubljana, Slovenia
[2]Department of Food Chemistry, National Institute of Chemistry, Ljubljana, Slovenia

P003 **Visible-light triggered photocatalytic oxidation reaction with Au+TiO_2 composites utilizing surface plasmon resonance effect of Au**

David Dolhar[1], Gregor Žerjav[1], Anja Sedminek[1], Marija Sollner Dolenc[2], Janez Zavašnik[3], Janez Kovač[3], Albin Pintar[1]
[1]National Institute of Chemistry, Ljubljana, Slovenia
[2]Faculty of Pharmacy, University of Ljubljana, Slovenia
[3]Jožef Stefan Institute, Ljubljana, Slovenia

P004 e-poster **Tandem effect of polychromatic radiation: Enhanced activity of N-doped TiO_2 photocatalyst under full-spectrum light**

Nikita Kovalevskiy[1,2], Dmitry Svintsitskiy[1,2], Svetlana Selishcheva[1,2], Denis Kozlov[1,2], Dmitry Selishchev[1,2]
[1]Boreskov Institute of Catalysis, Novosibirsk, Russian Federation
[2]Novosibirsk State University, Novosibirsk, Russian Federation

P005 e-poster **Photocatalytic activity of thin ALD/PE-ALD ZnO films: A comparative study**

Daria Jardas[1,2], Robert Peter[1,2], Mateja Podlogar[3], Ales Omerzu[1,2], Kresimir Salamon[4], Mladen Petravic[1,2]
[1]Department of Physics, University of Rijeka, Croatia
[2]Centre for Micro- and Nanosciences and Technologies, Rijeka, Croatia
[3]Jožef Stefan Institute, Ljubljana, Slovenia
[4]Rudjer Boskovic Institute, Zagreb, Croatia

P006 e-poster **Cerium-based metal organic frameworks as heterogeneous photocatalysts**

Antonio Valverde González[1], Antonia M. Rasero-Almansa[1], Mercedes Pintado-Sierra[2], Félix Sánchez[2], Marta Iglesias[1]
[1]Materials Science Institute of Madrid (ICMM-CSIC), Spain
[2]Organic Chemistry Institute (IQO-CSIC), Madrid, Spain

P007 **Towards highly efficient flexible heterogenous photocatalysts for removal of persistent organic compounds**

Živa Marinko[1,2], Luka Suhadolnik[1], Barbara Šetina Batič[3], Miran Čeh[1]
[1]Department for Nanostructured Materials, Jožef Stefan Institute, Ljubljana, Slovenia
[2]Jožef Stefan International Postgraduate School, Ljubljana, Slovenia
[3]Laboratory of Vacuum Science and Optoelectronics, Institute of Metals and Technology, Ljubljana, Slovenia

P008 e-poster **Experimental and computational study on the adsorption of contaminants of emerging concern on TiO_2 photocatalyst**

Antonija Tomić, Matea Gavran, Marin Kovačić, Hrvoje Kušić, Ana Lončarić Božić
Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia

P009 **Nanostructured photocatalytic TiO_2/SnO_2 composites**

Lucija Višić[1], Ivana Panžić[2], Vilko Mandić[1], Jasper R. Plaisier[3]
[1]University of Zagreb, Faculty of Chemical Engineering and Technology, Croatia
[2]Division of Materials Physics, Ruđer Bošković Institute, Zagreb, Croatia
[3]Elettra Sincrotrone Trieste S.C.p.A., Basovizza, Italy

P010 e-poster **'Black TiO_2' synthesized by a sol-microwave strategy for solar photocatalysis**

Sanjay Gopal Ullattil[1,2], Pradeepan Periyat[1]
[1]Department of Chemistry, University of Calicut, Kerala, India
[2]Department of Chemical Engineering, Texas A&M University at Qatar, Doha, Qatar

P011 **Hierarchically structured microcellular π-conjugated polymers for visible light photocatalysis**

Sarah Jurjevec, Gregor Žerjav, Albin Pintar, Ema Žagar, Sebastijan Kovačič
National Institute of Chemistry, Ljubljana, Slovenia

P012 **Photocatalytic ozonation vs. other AOPs for removal of polar and nonpolar compounds over different commercial photocatalysts**

Andraž Šuligoj[1,2], Marko Kete[3], Urh Černigoj[4], Urška Lavrenčič Štangar[1]
[1]University of Ljubljana, Faculty of Chemistry and Chemical Technology, Slovenia
[2]National Institute of Chemistry, Ljubljana, Slovenia
[3]University of Nova Gorica, Laboratory for Environmental and Life Sciences, Slovenia
[4]BIA Separations, Ajdovščina, Slovenia

P013 **The role of water in the transformation of protonated titanate nanoribbons to anatase nanoribbons**

Polona Umek[1], Melita Sluban[1,2]
[1]Jožef Stefan Institute, Ljubljana, Slovenia
[2]Jožef Stefan International Postgraduate School, Ljubljana, Slovenia

P014 e-poster **Development of a novel rotating photocatalytic reactor for degradation of hazardous organic pollutants**

Ivana Elizabeta Zelić, Vesna Tomašić, Zoran Gomzi
Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia

P015 e-poster **Woven materials as a functional support in hybrid reactors for solar photocatalysis**

Lucija Radetić[1], Kristina Šimunković[1], Marija Tomaš[1], Tihana Čižmar[2], Andreja Gajović[2], Ivana Grčić[1]
[1]University of Zagreb, Faculty of Geotechnical Engineering, Croatia
[2]Ruđer Bošković Institute, Zagreb, Croatia

P016 e-poster

Water & air purification over TiO_2 glass fibers in CPC photoreactors

Kristina Šimunković[1], Lucija Radetić[1], Jan Marčec[1], Ivan Brnardić[2], Ivana Grčić[1]
[1]University of Zagreb, Faculty of Geotechnical Engineering, Croatia
[2]University of Zagreb, Faculty of Metallurgy, Croatia

P017 e-poster

Photocatalytic conversion of CO_2 into fuel: Activity in gas, liquid and supercritical state

Samar Al Jitan[1], Khalid Al-Ali[1], Raed Hashaikeh[2], Giovanni Palmisano[1]
[1]Khalifa University, Abu Dhabi, United Arab Emirates
[2]New York University Abu Dhabi, United Arab Emirates

P018

Electronic and geometric effects in copper-based catalysts for CO_2 reduction: Multiscale modeling perspective

Drejc Kopač, Matej Huš, Blaž Likozar
National Institute of Chemistry, Ljubljana, Slovenia

P019

Novel doped perovskite catalysts – Enhancing catalytic activity by tailored exsolution of nanoparticles

Lorenz Lindenthal[1], Janko Popovic[1], Raffael Rameshan[1], Thomas Ruh[1], Harald Summerer[2], Andreas Nenning[2], Alexander K. Opitz[2], Stefan Löffler[3], Christoph Rameshan[1]
[1]Technische Universität Wien, Institute of Materials Chemistry, Vienna, Austria
[2]Technische Universität Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria
[3]Technische Universität Wien, USTEM, Vienna, Austria

P020

***In-situ* XRD analysis of potassium promoted cobalt molybdenum nitrides for catalytic application**

Aleksander Albrecht, Paweł Adamski, Dariusz Moszyyński
Department of Inorganic Chemical Technology and Environment Engineering, West Pomeranian University of Technology in Szczecin, Poland

P021 e-poster

Carbon spheres generated by hydrothermal carbonization as tailor-made reactive sorbent

Maria Balda, Anett Georgi, Katrin Mackenzie, Frank-Dieter Kopinke
Helmholtz Centre for Environmental Research, Leipzig, Germany

P022 e-poster

Synthesis and characterization of multifunctional graphene-based magnetic nanomaterials

Thais Sayuri Berberich[1,2], Adriano Santos Silva[1], Jose Luis Diaz de Tuesta[1], Simone Delezuk Inglez[2], Helder Teixeira Gomes[1]
[1]Centro de Investigação de Montanha, Bragança, Portugal
[2]Universidade Tecnológica Federal do Paraná, Campus Ponta Grossa, Brazil

P023 e-poster

Carbon nanofibers from plastic solid waste

Jessica P.M. Lopes[1,2], Fernanda F. Roman[1,3], José L. Díaz de Tuesta[1], Giane G. Lenzi[2], Joaquim L. Faria[3], Adrián M.T. Silva[3], Helder T. Gomes[1]
[1]Centro de Investigação de Montanha, Instituto Politécnico de Bragança, Portugal
[2]Universidade Tecnológica Federal do Paraná, Ponta Grossa, Brasil
[3]Laboratory of Separation and Reaction Engineering – Laboratory of Catalysis and Materials, Faculdade de Engenharia, Universidade do Porto, Portugal

P024

An NMR study of EDTA modified zeolite A – A search for enhanced catalytic sites

Janez Volavšek[1], Nataša Zabukovec Logar[1,2], Gregor Mali[1,2]
[1]National Institute of Chemistry, Ljubljana, Slovenia
[2]University of Nova Gorica, Slovenia

P025 e-poster

Mesoporous SSZ-13 synthesis via accelerated hydrolysis and condensation of tetraethyl orthosilicate

Bahar Ipek Torun
Middle East Technical University, Ankara, Turkey

P026 e-poster

On-line FTIR-MS gas phase analysis of dimethylfuran conversion over zeolites for production of green aromatics

Christopher Sauer[1], Marcus Vestergren[2], Anders Lorén[2], Per-Anders Carlsson[1]
[1]Department of Chemistry and Chemical Engineering, Chalmers University of Technology, Gothenburg, Sweden
[2]Department of Chemistry and Materials, RISE Research Institutes of Sweden, Borås, Sweden

P027

Improving stability and activity of zeolite Y-based catalysts for the aqueous-phase hydrogenation of levulinic acid via La^{3+} cation exchange

Hue-Tong Vu, Michael Goepel, Roger Gläser
Institute of Chemical Technology, Universität Leipzig, Germany

P028 e-poster

Direct synthesis of DME from syngas on hybrid catalysts based on Cu-ZnO(Al)/supported heteropolyacids: Effect of heteropolyacid loading on catalytic activity

Elena Millán Ordóñez, Noelia Mota Toledo, Rut Guil López, Rufino Manuel Navarro Yerga
Catalysis and Petrochemistry Institute, Superior Council of Scientific Investigations (CSIC), Madrid, Spain

P029

How the d-band center determines the catalytic activity in the synthesis of carbon neutral fuels

Johannes Häusler[1], Joachim Pasel[1], Friederike Woltmann[1], Ralf Peters[1], Detlef Stolten[2]
[1]Jülich Research Center GmbH, Germany
[2]RWTH Aachen University, Germany

P030 e-poster

Phase transformations during CO_2-Fischer-Tropsch synthesis studied on mesoporous iron oxide films as model system

Aleks Arinchtein[1], René Sachse[1], Denis Bernsmeier[1], Qingxin Yang[2], Jana Weiss[2], Evgenii Kondratenko[2], Ralph Kraehnert[1]
[1]Technische Universität Berlin, Germany
[2]Leibniz Institut für Katalyse e.V., Rostock, Germany

P031

A comprehensive study of catalysis and multiscale modelling of dry methane reforming over Ni/CeO_2-R catalyst

Vikram Tatiparthi Sagar[1], Filip Strniša[2], Petar Djinović[1], Igor Plazl[2], Albin Pintar[1]
[1]National Institute of Chemistry, Ljubljana, Slovenia
[2]Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia

P032

Role of basic sites for CO_2 activation on differently nanoshaped CeO_2 during dry reforming of methane

Kristijan Lorber, Petar Djinović
National Institute of Chemistry, Ljubljana, Slovenia

P033 e-poster

Addition of a second metal on Pd/CeO_2 dry milled catalysts for methane oxidation

Andrea Mussio[1], Sara Colussi[1], Jordi Llorca[2], Nuria Divins[2], Alessandro Trovarelli[1]
[1]University of Udine, Italy
[2]Universitat Politècnica de Catalunya, Barcelona, Spain

P034 e-poster

Characterization of $Pd\text{-}PdO/CeO_2$ methane oxidation catalysts prepared by dry milling ceria with Pd acetate

Maila Danielis[1], Sara Colussi[1], Luis E. Betancourt[2], Núria J. Divins[3], Sanjaya D. Senanayake[2], Jordi Llorca[3], José A. Rodriguez[2], Alessandro Trovarelli[1]
[1]Polytechnic Department and INSTM, University of Udine, Italy
[2]Chemistry Division, Brookhaven National Laboratory, Upton, New York, USA
[3]Institute of Energy Technologies and Department of Chemical Engineering, UPC, Barcelona, Spain

P035 e-poster

Novel hierarchical copper-based metal-organic frameworks for improved catalytic performance

Huan V. Doan[1,2], Ken Chiang[3], Srinivasan Madapusi[3], Samuel Pattisson[4], David J. Morgan[4], Stuart H. Taylor[4], Valeska P. Ting[1]
[1]Department of Mechanical Engineering, University of Bristol, UK
[2]Department of Oil Refining and Petrochemistry, Hanoi University of Mining and Geology, Vietnam
[3]School of Engineering, RMIT University, Melbourne, Australia
[4]Cardiff Catalysis Institute, Cardiff University, UK

P036 e-poster

Heterometallic metal-organic frameworks (MOFs) as new catalysts for energy related applications

Raquel Del Angel[1], Georges Mouchaham[1], Marco Daturi[2], Christian Serre[1]
[1]Institut des Matériaux Poreux de Paris, UMR 8004 CNRS, Ecole Normale Supérieure, Paris, France
[2]Normandie Univ, ENSICAEN, UNICAEN, CNRS, Laboratoire Catalyse et Spectrochimie, Caen, France

P037

Confinement effects of porphyrin-MOFs in diastereoselective cyclopropanation catalysis

Karina Hemmer[1], Konstantin Epp[1], Bart Bueken[2], Mirza Cokoja[1], Dirk de Vos[2], Roland Fischer[1]
[1]Technical University of Munich, Germany
[2]Katholieke Universiteit Leuven, Belgium

P038

Effect of morphology of nanoshaped Pd/CeO_2 catalysts for CO_2 hydrogenation to methanol

Rohini Ashokrao Khobragade[1], Matevž Roškarič[1], Martin Košiček[2], Janez Zavašnik[2], Albin Pintar[1]
[1]National Institute of Chemistry, Ljubljana, Slovenia
[2]Jožef Stefan Institute, Ljubljana, Slovenia

P039 **Nanometallurgy in solution: Synthesis of ultra-small Pd/Ga colloids and their performance in semi-hydrogenation catalysis**

Lena Staiger[1], Tim Krakty[2], Sebastian Günther[2], Ondrej Tomanek[3], Richard W. Fischer[4], Roland A. Fischer[1], Mirza Cokoja[1]
[1]Chair of Inorganic and Metal-Organic Chemistry, TU Munich, Germany
[2]Chair of Physical Chemistry with Focus on Catalysis, TU Munich, Germany
[3]Regional Center of Advanced Technologies and Materials, Olomouc, Czech Republic
[4]Clariant Produkte (Deutschland) GmbH, Bruckmühl, Germany

P040 **Ionic liquid surfactants as multitasking micellar catalysts for epoxidations in water**

Fabian Schmidt[1], Bastian Zehner[2], Wolfgang Korth[2], Andreas Jess[2], Mirza Cokoja[1]
[1]Technical University of Munich, Germany
[2]University of Bayreuth, Germany

P041 **Effect of the catalytic support in the direct synthesis of hydrogen peroxide promoted by palladium catalysts**

Francesco Sandri, Mattia Danieli, Paolo Centomo, Marco Zecca
Università degli Studi di Padova, Italy

P042 **Selective hydrogenolysis of glycerol over copper-magnesium supported catalysts: Catalytic performance and characterization**

Praveen Kumar, Urška Lavrenčič Štangar
Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia

P043 **Enhancing the apparent catalytic activity of gold nanoparticles in liquid phase oxidation of glucose by optimized pore size – The importance of the local environment in catalysis**

Milena Perovic[1], Nadezda V. Tarakina[1], Jan P. Hofmann[2,3], Martin Oschatz[1,4]
[1]Max Planck Institute of Colloids and Interfaces, Potsdam, Germany
[2]Technische Universität Darmstadt, Germany
[3]Eindhoven University of Technology, The Netherlands
[4]University of Potsdam, Germany

P044 **Directing nitrogen-doped carbon support chemistry for improved hydrogenation catalysis**

Monika Bosilj[1,3], Lina Rustam[1], Robin J. White[2], Anna Fischer[3,4,5]
[1]Fraunhofer ISE, Freiburg, Germany
[2]Netherlands Organization for Applied Scientific Research, Eindhoven, Netherlands
[3]Institute for Inorganic and Analytical Chemistry, Albert-Ludwigs-Universität Freiburg, Germany
[4]Freiburg Material Research Center, Albert-Ludwigs-Universität Freiburg, Germany
[5]Freiburg Center for Interactive Materials and Bioinspired Technologies, FIT, Albert-Ludwigs-Universität Freiburg, Germany

P045 **First principles investigation on furfural conversion on MoO_2 and MoO_3 surfaces**

Žan Kovačič, Aleksa Kojčinović, Miha Grilc, Matej Huš, Blaž Likozar
Department of Catalysis and Chemical Reaction Engineering, National Institute of Chemistry, Ljubljana, Slovenia

P046 e-poster **Microwave-assisted condensation of hydroxymethylfurfural and acetone over recyclable hydrotalcite-related materials**

Alberto Tampieri[1], Cesare Russo[1], Raffaele Marotta[2], Magdalena Constantí[1], Sandra Contreras[1], Francesc Medina[1]
[1]DEQ, ETSEQ, Universitat Rovira i Virgili, Tarragona, Spain
[2]DICMAPI, Università di Napoli Federico II, Italy

P047 e-poster **M/Al (M = Ni, Cu, Co) catalysts based on layered double hydroxides (LDHs) precursors for furfural hydrogenolysis**

Abdulaziz Aldureid, Francisco Medina Cabello, Daniel Montane
Universitat Rovira i Virgili, Tarragona, Spain

P048 **Reaction kinetics of isobutene oligomerization**

Matic Grom, Andrej Pohar, Blaž Likozar
National Institute of Chemistry, Ljubljana, Slovenia

P049 **Micro-kinetics of direct methane conversion to ethylene, ethane, acetylene and hydrogen over Pt/CeO_2 catalyst**

David Bajec, Andrii Kostyniuk, Andrej Pohar, Blaž Likozar
National Institute of Chemistry, Ljubljana, Slovenia

P050 **Influence of alumina support properties on Cu-Fe bimetal catalyst for total toluene oxidation as model volatile organic air pollutant**

Tadej Žumbar[1], Alenka Ristić[1], Goran Dražić[1], Margarita Popova[2], Albin Pintar[1], Nataša Zabukovec Logar[1,3], Nataša Novak Tušar[1,3]
[1]National Institute of Chemistry, Ljubljana, Slovenia
[2]Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia, Bulgaria
[3]University of Nova Gorica, Slovenia

P051 **Testing low-temperature fuel cell cathode materials with novel modified floating electrode methodology**

Armin Hrnjić[1,2], Nejc Hodnik[1,2], Primož Jovanović[1]
[1]Department of Materials Chemistry, National Institute of Chemistry, Ljubljana, Slovenia
[2]University of Nova Gorica, Slovenia

P052 e-poster **Enhancing the electrical conductivities of electro-catalytically active mesoporous oxide films via transition metal doping**

Marvin Frisch[1], Joachim Laun[2], Michael Bernicke[1], Aleks Arinchtein[1], Thomas Bredow[2], Ralph Kraehnert[1]
[1]Technical University of Berlin, Germany
[2]University of Bonn, Germany

P053 **Electrochemical degradation of carbon-supported gold nanoparticles**

Milutin Smiljanić, Marjan Bele, Urša Petek, Francisco Ruiz-Zepeda, Martin Šala, Primož Jovanovič, Miran Gaberšček, Nejc Hodnik
National Institute of Chemistry, Ljubljana, Slovenia

P054 **Stability of electrodeposited copper nanoparticles as a catalyst for CO_2 electroreduction: IL-SEM study**

Stefan Popović, Marjan Bele, Urša Petek, Nejc Hodnik
National Institute of Chemistry, Ljubljana, Slovenia

P055 **Reduced graphene oxide as an advanced Pt-alloy electrocatalyst support material in PEMFC applications**

Luka Pavko[1], Matija Gatalo[1], Boštjan Genorio[2], Angelja Kjara Surca[1], Nejc Hodnik[1], Miran Gaberšček[1]
[1]*National Institute of Chemistry, Ljubljana, Slovenia*
[2]*Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia*

P056 e-poster **Pore size-dependent charge storage behavior of three-dimensionally ordered hierarchically porous carbon materials for high performance Li-Se battery**

Hongyan Li
University of Namur, Belgium

P057 **Catalyst design from first prin: screening of the periodic table**

Matej Huš[1,2], Miha Grilc[1], Blaž Likozar[1], Anders Hellman[2]
[1]*National Institute of Chemistry, Ljubljana, Slovenia*
[2]*Chalmers University of Technology, Gothenburg, Sweden*

SOCIAL EVENTS

The following social programme has been arranged for participants of the 2020 EFCATS Summer School:

• Tuesday, 15 September 2020, 20:00 – 22:00; **Get-together party**

The get-together party of participants attending the 2020 EFCATS Summer School will be held in the beach area of Hotel Vile Park. A selection of local-style food and drinks will be provided. Dress code: *Casual*

• Wednesday, 16 September 2020, 20:00 – 22:00; **Welcome reception**

To welcome the conference participants, an informal gathering will take place in the Cocktail Lounge of Grand Hotel Bernardin. During the evening you will enjoy a selection of drinks, cold/hot buffet and light music. Dress code: *Casual*

• Thursday, 17 September 2020, 20:00 – 23:00; **Gala dinner**

Relax and enjoy under the stars in a unique view of the Piran Bay and taste the famous Mediterranean cuisine in the modern-stylish setting arranged on the Terrace International of the St. Bernardin Adriatic Resort and Convention Center. The fee covers an apéritif followed by a regional meal accompanied by excellent Slovene wines and entertainment. Dress code: *Business casual*

• Friday, 18 September 2020, 20:30 – 22:00; **Party**

The party will be held in the charming medieval town of Piran-Pirano. Located at the entrance to the Tartini Square, the smiling staff of Batana pizzeria will offer you a wide range of pizzas, the recipes of which have remained unchanged for over 40 years. You are bound to have a beautiful view of the harbor. Dress code: *Casual*

Map:

Wi-Fi Internet Access. For the duration of the 2020 EFCATS Summer School, Wi-Fi internet access will be available free of charge in Grand Hotel Bernardin Convention Center.

Conference Mobile Application. To follow the scientific programme on mobile devices, the attendees are invited to use the »Eventor« mobile app available for free in Google Play and iTunes App stores.

No-Smoking Policy. For the comfort and health of all attendees, the 2020 EFCATS Summer School is smoke-free. In addition to this, there is a law in Slovenia that prohibits indoor smoking in public places except for strictly designated sections.

Silent Cellular Phone Policy. For the comfort and peace of all attendees, cellular telephone ringing has to be switched off before entering lecture rooms. Violators will be asked to leave the lecture room.

Emergency Medical Service. Resuscitation team and emergency ambulance will be available at all times during the event. Please report all emergencies to the Registration Desk.

Responsibility. The Organizing Committee does not accept responsibility for any personal injury, damage or loss of property which may occur in connection with this event or any of the programmed events. The participants are kindly requested to make their own insurance arrangements.

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CONTACT

2020 EFCATS Summer School Secretariat
c/o Slovenian Chemical Society
Hajdrihova 19, P.O. Box 660
SI-1001 Ljubljana
Slovenia

Phone: +386 1 47 60 252
Fax: +386 1 47 60 300
E-mail address: chem.soc@ki.si
https://skd2020.chem-soc.si/2020-efcats-summer-school/