

4TH INTERNATIONAL CONFERENCE ON FUNDAMENTALS AND APPLICATIONS OF CERIUM DIOXIDE IN CATALYSIS

PROGRAMME

2024
CERIA
Conference

17-20
SEPTEMBER 2024



Welcome to the Ceria 2024 Conference!

The »4th International Conference on Fundamentals and Applications of Cerium Dioxide in Catalysis« (Ceria 2024) will take place from 17-20 September 2024 at the Grand Hotel Bernardin Convention Center in Portorož-Portorose, Slovenia. The event is organized by the Catalysis Division of the Slovenian Chemical Society.

Objectives

The Ceria 2024 Conference will bring together outstanding researchers to discuss the general aspects of catalysis by ceria and related materials, recent advances in synthesis, *in situ* and *operando* characterization and testing of heterogeneous catalysts, and multi-scale modelling of catalytic processes with this particular catalytic material. Master and PhD students, early-stage researchers and PIs working on the above topics will participate in the event. Ten world-renowned experts will give plenary and invited lectures and report on the latest and most exciting developments in the field of catalysis by ceria. Participants at the Ceria 2024 Conference will present the results of their research in the form of oral presentations and poster contributions, broadening the scope of the discussion. A student paper contest will also be organized as an integral part of the conference.

Format

The Ceria 2024 Conference will last four days and will consist of plenary and invited lectures, oral presentations and poster contributions. The contributions have been selected by the Organizing Committee, based on the innovative aspect and scientific level.

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

Participants of the Ceria 2024 Conference will be able to attend the scientific sessions of the 30th Annual Meeting of the Slovenian Chemical Society, which will be held in parallel at the Grand Hotel Bernardin Convention Center.

Topics

The Ceria 2024 Conference will cover the following topics:

- advanced synthesis and basic characterization of ceria-based heterogeneous catalysts
- *in situ* and *operando* characterization
- synchrotron characterization
- ceria-based materials for CO₂ utilization
- ceria-based materials for thermal, photothermal, photocatalytic and electrocatalytic applications
- air and water purification
- multi-scale modelling of catalytic processes
- on the way to industrial use

Organizing Committee

Albin Pintar (chair)

Slovenian Chemical Society and National Institute of Chemistry, Ljubljana, Slovenia

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Slovenian Chemical Society and National Institute of Chemistry, Ljubljana, Slovenia

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China

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United States of America

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@sava.si • <https://www.sava-hotels-resorts.com/en/>

Portorož-Portorose, the town on the Slovenian Riviera, is known for its climatic conditions, which are conducive to health and well-being in general. The thermal baths, based on brine and salty mud, have a very old tradition dating back to the 13th century. In addition, the “Port of Roses” offers its visitors sandy beaches, the best-equipped marina for yacht tourists, various sports activities and a wide range of entertainment, including a casino. Portorož-Portorose is easily accessible by plane (Ljubljana, Trieste, Venice), by train (Koper, Trieste), by boat (Venice) and by road.

The Ceria 2024 Conference will take place in the luxurious Grand Hotel Bernardin Convention Center, which is located in the St. Bernardin hotel and conference resort (see <https://www.sava-hotels-resorts.com/en/st-bernardin-resort-portoroz/>). The latter is located on a peninsula with lush Mediterranean flora, halfway between the mediaeval town of Piran-Pirano and the modern seaside resort of Portorož-Portorose. The bell tower of the remains of the 15th century monastery of St. Bernardin 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, together with the resort's exceptional location and services, makes the Grand Hotel Bernardin's convention center the ideal venue for business, scientific and social events for up to 2600 people.

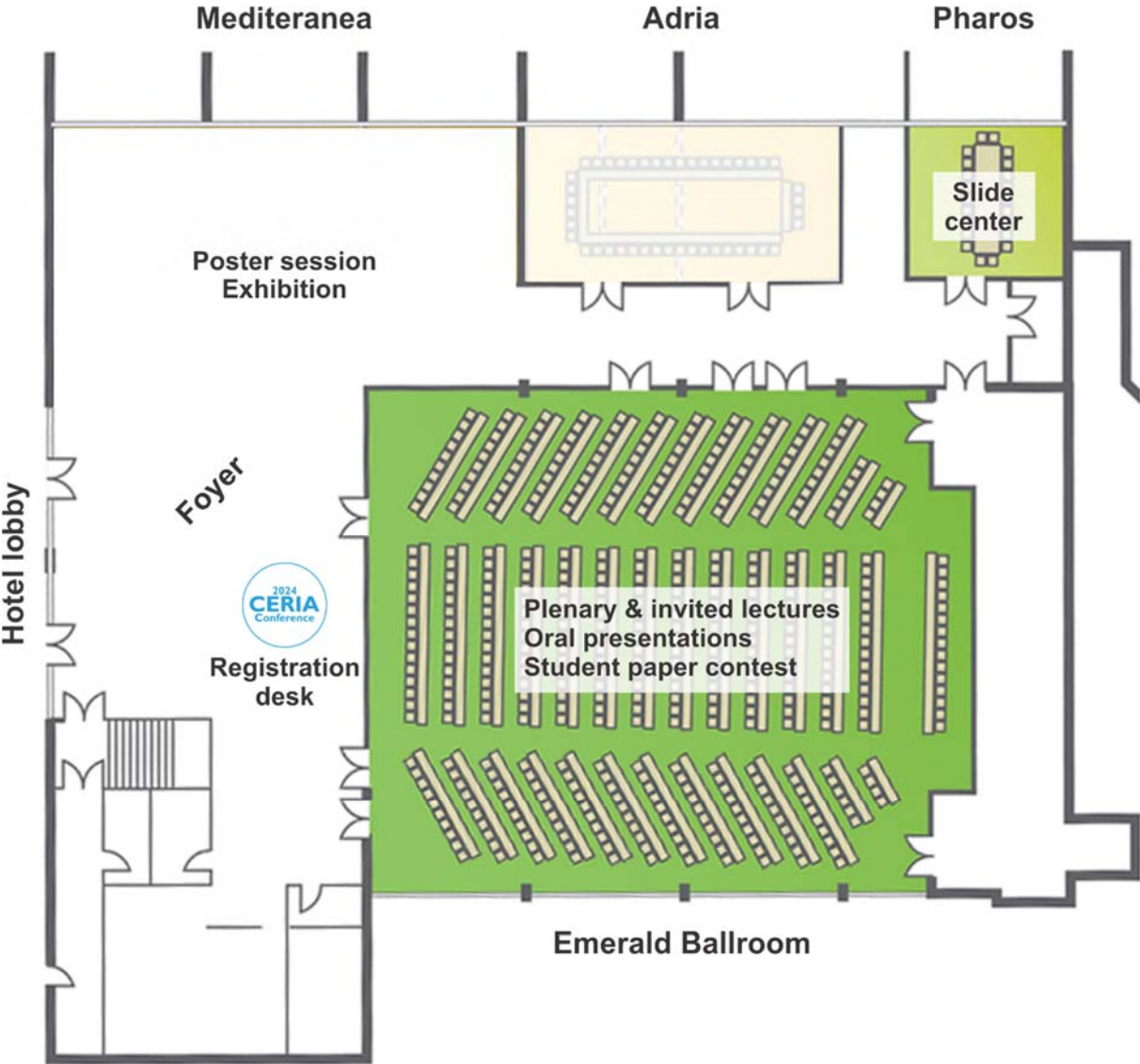
Among the amenities at your disposal are sand and grass beaches, a windsurfing school, boats, sailboats, indoor and outdoor pools, fitness, a diving school, a boat harbour, golf, tennis courts, boules courts, a basketball court, a beach-venue court, bicycles, exquisite national and fish dishes in several restaurants with perfect local wines, music and dancing, a casino and much more.



Programme at a Glance

	Tuesday, 17 September	Wednesday, 18 September	Thursday, 19 September	Friday, 20 September	
08:00		Late registration			
08:30		Plenary lecture	Plenary lecture	Oral presentations	
09:30		Oral presentations	Oral presentations		
10:30		Coffee break	Coffee break	Coffee break	
11:00		Oral presentations	Oral presentations	Plenary lecture	
12:00				Oral presentations	
13:00		Lunch break	Lunch break	Lunch break	
14:30		Oral presentations	Oral presentations	Oral presentations	
15:50				Short break	
16:00				Student awards & closing remarks	
16:30		Registration & welcome drink	Poster session & coffee break	Coffee break	
17:00				Oral presentations	
17:50		Opening	Free time	Free time	
18:00	Plenary lecture				
18:40	Oral presentations	Guided tour to Piran-Pirano	Free time		
19:00					
20:00	Get-together party		Conference dinner		
21:00					
22:00					
23:59					

Ground Plan of the Grand Hotel Bernardin Convention Center (11th Floor)





PROGRAMME

Tuesday, 17 September 2024

16:00 – 17:50	Registration & welcome drink Foyer of the Grand Hotel Bernardin Convention Center (11th floor)
17:50 – 18:00	Opening Emerald Ballroom 2 (11th floor)
18:00 – 19:00	Plenary session P1 Emerald Balroom 2 Chairperson: José Antonio Rodriguez
18:00 – 18:55	Plenary lecture (PL 1): Designing metal/ceria catalysts for energy production and a cleaner future: Synergy of theory and experiment <u>M. Verónica Ganduglia-Pirovano</u> <i>Institute of Catalysis and Petrochemistry (ICP-CSIC), Madrid, Spain</i>
18:55 – 19:00	Short break
19:00 – 20:00	Afternoon session 1 Emerald Balroom 2 Chairperson: José Antonio Rodriguez
19:00 – 19:20	Section lecture (O 1): Fe-modified CeO₂(111) surfaces studied by near-ambient pressure XPS, STM and DFT František Pchálék ¹ , Shiva Oveysipoor ¹ , Lesia Piliai ¹ , Pablo Castro-Latorre ² , Yuliia Kosto ^{1,3} , Ivan Khalakhan ¹ , Tomáš Skála ¹ , Pere Alemany ² , Konstantin M. Neyman ^{2,4} , Michael Vorochta ¹ , Albert Bruix ² , <u>Peter Matvija</u> ¹ , Iva Matolínová ¹ ¹ <i>Department of Surface and Plasma Science, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic</i> ² <i>Departament de Ciència de Materials i Química Física and Institut de Química Teòrica i Computacional, Universitat de Barcelona, Spain</i> ³ <i>Brandenburg University of Technology Cottbus-Senftenberg, Cottbus, Germany</i> ⁴ <i>Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain</i>
19:20 – 19:40 SPC	Section lecture (O 2): Variable band edge positions in ceria: Bulk, surface, and environmental effects <u>Xingfan Zhang</u> , C. Richard A. Catlow, Alexey A. Sokol <i>Kathleen Lonsdale Materials Chemistry, Department of Chemistry, University College London, United Kingdom</i>
19:40 – 20:00	Section lecture (O 3): Unveiling vibrational insights and oxidation mechanism of cerium-oxide-bound CO: Advancing DFT accuracy and deciphering peroxo species influence <u>Pablo Germán Lustemberg</u> ¹ , Chengwu Yang ² , Yuemin Wang ² , Christof Wöll ² , M. Veronica Ganduglia-Pirovano ¹ ¹ <i>Institute of Catalysis and Petrochemistry, Madrid, Spain</i> ² <i>Institute of Functional Interfaces, Karlsruhe Institute of Technology, Germany</i>

20:00 – 22:00

Get-together party

Grand Hotel Bernardin, Cocktail Lounge and Piano Bar (11th floor)

Legend: SPC – Student paper contest



Participants of the Ceria 2024 Conference will be able to attend the scientific sessions of the 30th Annual Meeting of the Slovenian Chemical Society (<https://skd2024.chem-soc.si/en/>), which will be held in parallel at the Grand Hotel Bernardin Convention Center from 18-20 September 2024.

Wednesday, 18 September 2024

8:00 – 8:30	Registration Foyer of the Grand Hotel Bernardin Convention Center (11th floor)	
8:30 – 9:30	Plenary session P2 Chairperson: Jing Zhou	Emerald Ballroom 2
8:30 – 9:25	Plenary lecture (PL 2): Ceria-metal interfaces in C1 catalysis: Conversion of CO₂ and CH₄ to methanol <u>José Antonio Rodriguez</u> <i>Brookhaven National Laboratory, Upton (NY), United States of America</i>	
9:25 – 9:30	Short break	
9:30 – 10:30	Morning session 2 Chairperson: Jing Zhou	Emerald Ballroom 2
9:30 – 9:50	Section lecture (O 4): Cu doped CeO₂ model catalysts: Understanding the structure-activity relationship on CH₄ activation combining soft X-ray <i>operando</i> spectroscopies <u>Silvia Mauri</u> ¹ , Eleonora Spurio ² , Samuele Pelatti ^{2,3} , Paola Luches ² , Sergio D'addato ^{2,3} , Alexander Klyushin ⁴ , Esko Kokkonen ⁴ , Stefania Benedetti ² , Piero Torelli ¹ ¹ <i>CNR-Istituto Officina dei Materiali, Trieste, Italy</i> ² <i>CNR-Istituto Nanoscienze, Modena, Italy</i> ³ <i>Dipartimento di Scienze Fisiche, Informatiche, Matematiche, Università di Modena e Reggio Emilia, Modena, Italy</i> ⁴ <i>MAX IV Laboratory, Lund University, Sweden</i>	
9:50 – 10:10 SPC	Section lecture (O 5): Exploring the enhanced activity of mechanochemically milled Pd/CeO₂ catalyst via Co addition: Insights from synchrotron studies on methane oxidation <u>Laia Pascua-Solé</u> , Jordi Llorca, Núria J. Divins <i>Universitat Politècnica de Catalunya, Barcelona, Spain</i>	
10:10 – 10:30 SPC	Section lecture (O 6): Atomistic perspectives from DFT calculations in methane activation on La₂Ce₂O₇ clusters <u>Carina de Souza Teixeira Peraça</u> ¹ , Albert Frederico Barbosa Bittencourt ¹ , Raquel Costabile Bezerra ² , Juarez Lopes Ferreira Da Silva ¹ ¹ <i>University of São Paulo, São Carlos Institute of Chemistry, Brazil</i> ² <i>State Secretariat for Education and Teaching Quality of the State of Amazonas, Áurea Pinheiro Braga School, Brazil</i>	
10:30 – 11:00	Coffee break	

11:00 – 13:00	Morning session 3 Chairperson: Angelos M. Efstathiou	Emerald Ballroom 2
11:00 – 11:40	Invited lecture (IL 1): Electronic oxide-metal interaction of CeO_{2-x}/M inverse catalysts <u>Weixin Huang</u> <i>University of Science and Technology of China, Hefei, China</i>	
11:40 – 12:00 SPC	Section lecture (O 7): Ceria-Pt model electrocatalysis: A study on structure-property relationships Lukas Fusek ^{1,2} , <u>Pankaj Kumar Samal</u> ¹ , Jiří Keresteš ¹ , Ivan Khalakhan ¹ , Viktor Johánek ¹ , Yaroslava Lykhach ² , Jörg Libuda ² , Olaf Brummel ² , Josef Mysliveček ¹ ¹ <i>Department of Surface and Plasma Science, Charles University, Prague, Czech Republic</i> ² <i>Interface Research and Catalysis, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany</i>	
12:00 – 12:20	Section lecture (O 8): Probing the redox capacity of Pt–CeO₂ model catalyst for low-temperature CO oxidation Alexander Simanenko ¹ , Maximilian Kastenmeier ¹ , Lesia Piliai ² , Yuliia Kosto ² , Tomáš Skála ² , Nataliya Tsud ² , Sascha Mehl ³ , Mykhailo Vorokhta ² , Iva Matolínová ² , <u>Yaroslava Lykhach</u> ¹ , Jörg Libuda ¹ ¹ <i>Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany</i> ² <i>Charles University, Prague, Czech Republic; 3Elettra-Sincrotrone Trieste, Italy</i>	
12:20 – 12:40	Section lecture (O 9): Dynamics of Ce-O bond energy upon formation of O vacancies <u>Feng Ryan Wang</u> <i>Department of Chemical Engineering, University College London, United Kingdom</i>	
12:40 – 13:00	Section lecture (O 10): Novel synthesis route for ceria-based catalysts <u>Jorge Roberto Vargas-García</u> , Sarahi Espinoza-Pacheco, María de los Angeles Hernández-Pérez, Cesar Fabian Martínez-Tovar <i>Instituto Politécnico Nacional, Ciudad de México, Mexico</i>	
13:00 – 14:30	Lunch break Grand Hotel Bernardin, Restaurant Sunset (10th floor)	
14:30 – 16:30	Afternoon session 4 Chairperson: Jordi Llorca	Emerald Ballroom 2
14:30 – 15:10	Invited lecture (IL 2): Ceria-metal interaction: A closer look to Pd/CeO₂ catalysts <u>Sara Colussi</u> <i>University of Udine, Italy</i>	

15:10 – 15:30	<p>Section lecture (O 11): Decoupling of CeO₂ and Pd to improve catalytic activity in methane total oxidation Katja Neubauer, <u>Sebastian Wohlrab</u> <i>Leibniz Institute for Catalysis, Rostock, Germany</i></p>
15:30 – 15:50	<p>Section lecture (O 12): Pr-doped Pd/CeO₂ catalysts to enhance CH₄ oxidation: Unveiling the role of Pr through advanced spectroscopy Enrico Sartoretti, Sabrina Ballauri, Micaela Castellino, Elena Simone, Marco Armandi, Marco Piumetti, Debora Fino, Nunzio Russo, <u>Samir Bensaid</u> <i>Department of Applied Science and Technology, Politecnico di Torino, Italy</i></p>
15:50 – 16:10	<p>Section lecture (O 13): Dynamics of Ce and Pt adatoms at ceria step edges Matteo Farnesi Camellone², Filip Dvořák¹, Oleksandr Stetsovych¹, Simone Piccinin², Stefano Fabris², <u>Josef Mysliveček</u>¹ ¹<i>Charles University, Faculty of Mathematics and Physics, Prague, Czech Republic</i> ²<i>Istituto Officina dei Materiali, Consiglio Nazionale delle Ricerche (CNR-IOM), Trieste, Italy</i></p>
16:10 – 16:30	<p>Section lecture (O 14): Tracking the noble metal nanoparticle redispersion on cubic CeO₂ for long-time stable catalysts <u>Florian Maurer</u>¹, Agustin Salcedo², Maria Casapu¹, David Loffreda², Arik Beck¹, Mimoun Aouine³, Thierry Epicier³, Stephane Loridant³, Philippe Vernoux³, Carine Michel², Jan-Dierk Grunwaldt¹ ¹<i>Institute of Chemical Technology and Polymer Chemistry, Karlsruhe Institute of Technology, Germany</i> ²<i>ENSL, CNRS, Laboratoire de Chimie, Lyon, France</i> ³<i>Universite Claude Bernard Lyon 1, CNRS, IRCELYON, Villeurbanne, France</i></p>
16:30 – 18:00	<p>Poster session with coffee break Foyer of the Grand Hotel Bernardin Convention Center (11th floor)</p>
18:00 – 19:00	<p>Free time</p>
19:00 – 21:00	<p>Guided tour to Piran-Pirano Meeting point: Beach area of the Grand Hotel Bernardin</p>

Legend: SPC – Student paper contest

Thursday, 19 September 2024

8:30 – 9:30	Plenary session P3 Chairperson: Sara Colussi	Emerald Ballroom 2
8:30 – 9:25	Plenary lecture (PL 3): Ceria for non-reductive CO₂ conversion and deoxydehydration <u>Keiichi Tomishige</u> <i>Tohoku University, Sendai, Japan</i>	
9:25 – 9:30	Short break	
9:30 – 10:30	Morning session 5 Chairperson: Sara Colussi	Emerald Ballroom 2
9:30 – 9:50	Section lecture (O 15): The role of samarium in the catalytic activation of CO₂ over cerium oxide nanoparticles supported on Ru(0001) Raquel Sánchez-Barquilla ¹ , Rudi Tschammer ¹ , Lars Buß ¹ , Dominic Guttmann ¹ , Virginia Pérez-Dieste ² , Tefvik Onur Mentès ³ , Iulia Cojocairu ³ , Matteo Jugovac ³ , Andrea Locatelli ³ , Jens Falta ^{4,5} , Carlos Morales ¹ , <u>Jan Ingo Flège</u> ¹ ¹ <i>BTU Cottbus-Senftenberg, Cottbus, Germany</i> ² <i>ALBA Synchrotron Light Source, Barcelona, Spain</i> ³ <i>Elettra-Sincrotrone, Trieste, Italy</i> ⁴ <i>University of Bremen, Germany</i> ⁵ <i>MAPEX Center for Materials and Processes, Bremen, Germany</i>	
9:50 – 10:10	Section lecture (O 16): Structural dynamics of Pt/CeO₂ catalysts and its use for accelerating the water gas shift reaction Clément Molinet-Chinaglia, Elizabeth Vera, Luis Cardenas, Philippe Vernoux, Laurent Piccolo, <u>Stephane Loridant</u> <i>Université Claude Bernard Lyon 1, CNRS, IRCELYON, Villeurbanne, France</i>	
10:10 – 10:30	Section lecture (O 17): Elucidating the role and dynamics of ceria in CO₂ activation catalysts using <i>operando</i> and transient spectroscopies <u>Christian Hess</u> , Marc Ziemba, Jakob Weyel <i>Eduard Zintl Institute for Inorganic and Physical Chemistry, TU Darmstadt, Germany</i>	
10:30 – 11:00	Coffee break and poster viewing	
11:00 – 13:00	Morning session 6 Chairperson: Emiel J.M. Hensen	Emerald Ballroom 2
11:00 – 11:40	Invited lecture (IL 3): Revealing and engineering metal-ceria interactions in heterogeneous catalysts <u>Matteo Cargnello</u> <i>Stanford University, Stanford (CA), United States of America</i>	

- 11:40 – 12:00 **Section lecture (O 18):**
Innovative approaches to make CeO₂ catalysts applicable in industrial reactors
Elena Martín Morales¹, Kandela Ruiz¹, Martí Biset-Peiró¹, Jordi Guilera^{1,2}
¹*Institut de Recerca en Energia de Catalunya, Sant Adrià de Besòs, Spain*
²*Facultat de Química, Universitat de Barcelona, Spain*
- 12:00 – 12:20 **Section lecture (O 19):**
The effect of Ce content on Ce reducibility across the composition range of disordered and ordered CeZr oxygen storage materials
David Thompsett, Amy Kolpin, Janet Fisher
Johnson Matthey plc, Reading, United Kingdom
- 12:20 – 12:40 **Section lecture (O 20):**
HCl oxidation over CeO₂(111)-based model catalysts: Activity and stability
V. Koller¹, P. Lustemberg², A. Spriewald-Luciano¹, S.M. Gericke³,
A. Larsson³, C. Sack¹, A. Preobrajenski⁴, E. Lundgren³,
M.V. Ganduglia-Pirovano², H. Over¹
¹*Justus Liebig University, Giessen, Germany*
²*Instituto de Catálisis y Petroleoquímica, Madrid, Spain*
³*Synchrotron Radiation Research, Lund University, Sweden*
⁴*MAX IV Laboratory, Lund University, Sweden*
- 12:40 – 13:00 **Section lecture (O 21):**
SPC **Ceria-catalyzed conversion of aminoalcohol-derived alkylcarbamic acids into urea derivatives**
Shogen Mihara, Natsuki Mizutani, Hikari Terada, Mizuho Yabushita,
Yoshinao Nakagawa, Keiichi Tomishige
Tohoku University, Sendai, Japan
- 13:00 – 14:30 Lunch break**
Grand Hotel Bernardin, Restaurant Sunset (10th floor)
- 14:30 – 16:30 Afternoon session 7 Emerald Ballroom 2**
Chairperson: Abhaya Krishna Datye
- 14:30 – 15:10 **Invited lecture (IL 4):**
Fundamental studies on the growth of Ni-based metal particles on CeO₂(111) thin films
Nishan Paudyal¹, Tasnim Ara¹, Nusrat Rifat², Ye Xu², Jing Zhou¹
¹*University of Wyoming, Laramie, United States of America*
²*Louisiana State University, Baton Rouge, United States of America*
- 15:10 – 15:30 **Section lecture (O 22):**
Atomic-layered Pt clusters on the CeO₂(110) facet: Very active for low-temperature water gas shift reaction
Qiangqiang Xu, Ze Wang, Xinzhen Feng, Weijie Ji
School of Chemistry and Chemical Engineering, Nanjing University, China

15:30 – 15:50	<p>Section lecture (O 23): YSZ-supported Ce/Zr pyrochlore monolayers with enhanced reducibility at low temperature Ramón Manzorro, Jose Manuel Montes-Monroy, Ana Belén Hungría, Lidia Ester Chinchilla, José Juan Calvino, <u>Jose Antonio Pérez-Omil</u> <i>University of Cádiz, Spain</i></p>
15:50 – 16:10 SPC	<p>Section lecture (O 24): Identifying Ce³⁺ sites at the reduced CeO₂ (111) surface: The role of water molecules and AFM imaging <u>Manuel González Lastre</u>¹, Estefanía Fernandez-Villanueva¹, Oscar Custance², Shigeki Kawai², M. Verónica Ganduglia-Pirovano³, Pablo Pou^{1,4}, Rubén Pérez^{1,4} ¹<i>Departamento de Física Teórica de la Materia Condensada, Universidad Autónoma de Madrid, Spain</i> ²<i>National Institute of Materials Science, Tsukuba, Japan</i> ³<i>Instituto de Catálisis y Petroleoquímica (ICP-CSIC), Madrid, Spain</i> ⁴<i>Condensed Matter Physics Center, Universidad Autónoma de Madrid, Spain</i></p>
16:10 – 16:30	<p>Section lecture (O 25): When platinum metal is not noble: Platinum-oxide clusters supported on ceria <u>Konstantin Neyman</u>¹, Jon Quinlivan², Pablo Castro-Latorre², Albert Bruix² ¹<i>ICREA & Universitat de Barcelona, Spain</i> ²<i>Universitat de Barcelona, Spain</i></p>
16:30 – 17:00	Coffee break
17:00 – 18:40	<p>Afternoon session 8 Emerald Ballroom 2 Chairperson: Maria Casapu</p>
17:00 – 17:20	<p>Section lecture (O 26): The effect of CeO₂ morphology on the carbon paths of dry reforming of methane on Ni/CeO₂ studied by transient isotopic methods Michalis A. Vasiliades¹, Constantinos M. Damaskinos¹, Maria Likaki², Michalis Konsolakis², <u>Angelos M. Efstathiou</u>¹ ¹<i>University of Cyprus, Nicosia, Cyprus</i> ²<i>Technical University of Crete, Chania, Greece</i></p>
17:20 – 17:40	<p>Section lecture (O 27): High-performance water gas shift induced by engineering the oxygen vacancy coordination environment: Ceria mixed oxides supported metal catalysts <u>Junjie Shi</u>, Alexander Genest, Nevzat Yigit, Günther Rupprechter <i>TU Wien, Vienna, Austria</i></p>

17:40 – 18:00 SPC	<p>Section lecture (O 28): Interface engineering of amorphous Cu₄₇Zr₄₇Al₆ metallic glass over CeO₂ for CO oxidation and COPrOx reaction <u>Maahin Mirzay Shahim</u>^{1,2}, Mehran Nabahat², Pere Bruna^{1,2}, Carlos Escudero⁴, Lluís Soler^{1,3}, Jordi Llorca^{1,3}, Eloi Pineda^{1,2} ¹<i>Institute of Energy Technologies and Barcelona Research Center in Multiscale Science and Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain</i> ²<i>Departament de Física, Universitat Politècnica de Catalunya, Barcelona, Spain</i> ³<i>Department of Chemical Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain</i> ⁴<i>ALBA Synchrotron Light Source, Cerdanyola del Vallès, Barcelona, Spain</i></p>
18:00 – 18:20	<p>Section lecture (O 29): Fine-tuning catalysts: The role of support nanomorphology in shaping Cu/CeO₂ CO-PROX properties Patricia Pérez-Bailac¹, Estefanía Fernández-Villanueva¹, Ana B. Hungría², Renato Cataluña³, Alejandro Vidal-Moya⁴, Teresa Blasco⁴, Laura Pascual¹, Pablo G. Lustemberg¹, Verónica Ganduglia-Pirovano¹, <u>Arturo Martínez-Arias</u>¹ ¹<i>ICP-CSIC, Madrid, Spain</i> ²<i>Universidad de Cádiz, Spain</i> ³<i>Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil</i> ⁴<i>ITQ-CSIC/UPV, Valencia, Spain</i></p>
18:20 – 18:40	<p>Section lecture (O 30): Mechanochemical activation of Au and Cu over CeO₂ catalysts for boosted CO oxidation and COPrOx reaction Shasha Ge^{1,2}, Yufen Chen¹, Yun Guo², Jordi Llorca¹, <u>Lluís Soler</u>¹ ¹<i>Department of Chemical Engineering and Barcelona Research Center in Multiscale Science and Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain</i> ²<i>Research Institute of Industrial Catalysis, School of Chemistry & Molecular Engineering, East China University of Science and Technology, Shanghai, China</i></p>
18:40 – 20:00	Free time
20:00 – 23:59	<p>Conference dinner Terrace International (in front of the Hotel Histrion)</p>

Legend: SPC – Student paper contest

Friday, 20 September 2024

8:30 – 10:30	Morning session 9 Chairperson: Weixin Huang	Emerald Ballroom 2
8:30 – 9:10	Invited lecture (IL 5): Redox-active cerium oxide nanoparticles: An antioxidant nanozyme alleviating the effects of oxidative stress in mammalian cells/tissues <u>Sanjay Kumar Singh</u> <i>National Institute of Animal Biotechnology, Hyderabad, India</i>	
9:10 – 9:30	Section lecture (O 31): Surface restructuring of cube-shaped ceria for catalysis <u>Wenjie Shen</u> <i>Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, China</i>	
9:30 – 9:50	Section lecture (O 32): Low-temperature methane activation reaction pathways over mechanochemically-generated Ce⁴⁺/Cu⁺ interfacial sites Silvia Mauri ² , <u>Rudy Calligaro</u> ¹ , Carlo Federico Pauletti ³ , Matteo Farnesi Camellone ⁴ , Marta Boaro ¹ , Luca Braglia ⁵ , Stefano Fabris ² , Simone Piccinin ⁴ , Piero Torelli ² , Alessandro Trovarelli ¹ ¹ <i>Università degli Studi di Udine, Italy</i> ² <i>CNR-Istituto Officina dei Materiali TASC Laboratory, Trieste, Italy</i> ³ <i>Università degli Studi di Trieste, Italy</i> ⁴ <i>CNR-Istituto Officina dei Materiali c/o SISSA, Trieste, Italy</i> ⁵ <i>AREA Science Park, Trieste, Italy</i>	
9:50 – 10:10 SPC	Section lecture (O 33): The role of metal nanostructure in ceria-supported catalysts for ammonia oxidation to nitrous oxide <u>Ivan Surin</u> ¹ , Qingxin Yang ¹ , Frank Krumeich ¹ , Tatiana Otroshchenko ² , Vita A. Kondratenko ² , Evgenii V. Kondratenko ² , Javier Pérez-Ramirez ¹ ¹ <i>ETH Zurich, Switzerland</i> ² <i>Leibniz Institut für Katalyse, Rostock, Germany</i>	
10:10 – 10:30	Section lecture (O 34): Ceria as a general de-esterification catalyst Suman Bhasker-Ranganath ¹ , <u>Ye Xu</u> ² ¹ <i>SLAC National Accelerator Laboratory, Menlo Park, United States of America</i> ² <i>Louisiana State University, Baton Rouge, United States of America</i>	
10:30 – 11:00	Coffee break	

11:00 – 12:00	Plenary session P4 Chairperson: Samir Bensaid	Emerald Ballroom 2
11:00 – 11:55	Plenary lecture (PL 4): Catalysis at interfaces: Atom-efficient metal/CeO₂ catalysts based on single atoms and clusters <u>Emiel J.M. Hensen</u> <i>Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, The Netherlands</i>	
11:55 – 12:00	Short break	
12:00 – 13:00	Morning session 10 Chairperson: Samir Bensaid	Emerald Ballroom 2
12:00 – 12:20	Section lecture (O 35): Surface protonics of CeO₂ <u>Truls Norby</u> , Xinwei Sun <i>University of Oslo, Norway</i>	
12:20 – 12:40	Section lecture (O 36): Versatile and robust single atom Ni catalysts on ceria Brandon Burnside ¹ , Ryan Alcala ¹ , Stephen Porter ¹ , Jesse Larence ¹ , Andrew DeLaRiva ¹ , Hua Guo ¹ , Sen Lin ² , Shan Jiang ³ , Jeffrey Miller ³ , <u>Abhaya Krishna Datye</u> ¹ ¹ <i>University of New Mexico, Albuquerque, United States of America</i> ² <i>Fuzhou University, China</i> ³ <i>Purdue University, West Lafayette, United States of America</i>	
12:40 – 13:00	Section lecture (O 37): Atomic structure of the active copper-ceria interfaces <u>Yan Zhou</u> , Wenjie Shen <i>Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, China</i>	
13:00 – 14:30	Lunch break Grand Hotel Bernardin, Restaurant Sunset (10th floor)	
14:30 – 15:50	Afternoon session 11 Chairperson: Yaroslava Lykhach	Emerald Ballroom 2
14:30 – 15:10	Invited lecture (IL 6): Boundaries for efficient ceria-based emission control catalysts <u>Maria Casapu</u> <i>Karlsruhe Institute of Technology, Germany</i>	
15:10 – 15:30	Section lecture (O 38): Effect of first-row transition metal doping on the stability and activity of Pd/CeO₂ and Pt/CeO₂ three-way catalysts <u>Valentin Jestl</u> ¹ , Muhammad Ariq Attallah ¹ , Valery Muravev ¹ , Tamsin Bell ² , Amy Kolpin ² , David Thompsett ² , Emiel Hensen ¹ ¹ <i>Eindhoven University of Technology, The Netherlands</i> ² <i>Johnson Matthey Technology Centre, Sonning Common, United Kingdom</i>	

15:30 – 15:50	<p>Section lecture (O 39): Visible light assisted methane reforming using a Ni/CeO_{2-x} nanorod catalyst Kristijan Lorber¹, Jordi Sancho Parramon², Janez Zavašnik³, Iztok Arčon^{3,4}, <u>Petar Djinović^{1,4}</u> ¹<i>National Institute of Chemistry, Ljubljana, Slovenia</i> ²<i>Institut Ruđer Bošković, Zagreb, Croatia</i> ³<i>Jožef Stefan Institute, Ljubljana, Slovenia</i> ⁴<i>University of Nova Gorica, Slovenia</i></p>
15:50 – 16:00	Short break
16:00 – 16:30	<p>Student awards and closing remarks Emerall Ballroom 1</p>

Legend: SPC – Student paper contest

POSTER SESSION

Foyer of the Grand Hotel Bernardin Convention Center (11th floor) - **Posters and exhibition**

Wednesday, 18 September 2024, 16:30 – 18:00

- P001** **Adsorption and catalytic properties of cerium (IV) oxide in aquatic environment**
SPC
Petra Šnoblová, Vilém Bartůňek
University of Chemistry and Technology, Prague, Czech Republic
- P002** **Adsorption behaviour of urea on cerium oxide electrode**
SPC
Anastasiia Deineko¹, Viacheslav Kalinovich¹, Sascha Leonhard Mehl²,
Tomáš Skála^{1,2}, Kevin Charles Prince^{1,2}, Iva Matolínová¹, Vladimír Matolín¹,
Nataliya Tsud^{1,2}
¹*Charles University, Prague, Czech Republic*
²*Elettra-Sincrotrone Trieste, Italy*
- P003** **Effect of La₂O₃ dopant on the adsorption of water on ceria surfaces**
SPC
Noa Azaria¹, Daniela Schweke², Lee Shelly¹, Shmuel Hayun¹
¹*Department of Materials Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel*
²*Nuclear Research Centre, Negev, Beer-Sheva, Israel*
- P004** **Characterisation of ceria-based materials for heterogeneous catalysis using magnetic measurements**
SPC
Jacob A. Oyarzabal¹, Martin R. Lees², Richard I. Walton¹
¹*Department of Chemistry, University of Warwick, United Kingdom*
²*Department of Physics, University of Warwick, United Kingdom*
- P005** **Novel strategy for the synthesis of cerium oxide-carbon cloth**
SPC
Adrian Arturo Solis-Jardon, Jorge Roberto Vargas-García
Instituto Politécnico Nacional, Ciudad de México, Mexico
- P006** **Size-controllable graphene synthesis via catalytic acetylene decomposition on ceria under low temperature**
Takeharu Yoshii, Mengxuan Zhang, Hiroto Nishihara
Tohoku University, Sendai, Japan
- P007** **3D-printed CeO₂ structures and catalytic applications**
Isabel Serrano¹, Iliaria Lucentini¹, Joao Pedro Gonçalves², Miguel Morales²,
Lluís Soler¹, Jordi Llorca¹
¹*Department of Chemical Engineering and Barcelona Research Center in Multiscale Science and Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain*
²*Department of Materials Science and Engineering and Barcelona Research Center in Multiscale Science and Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain*

- P008** **Ceria-based nanocomposites for magnetically-heated catalysis**
Nina Križaj Kosi^{1,2}, Jakov-Stjepan Pavelić³, Miha Grilc³, Blaž Likozar³,
Sašo Gyergyek¹, Darko Makovec¹
¹Department for Materials Synthesis, Jožef Stefan Institute, Ljubljana, Slovenia
²Jožef Stefan International Postgraduate School, Ljubljana, Slovenia
³Department for Catalysis and Chemical Reaction Engineering, National Institute of
Chemistry, Ljubljana, Slovenia
- P009** **Interaction of H₂ with the (111) surface of ceria: A comparison of Electron
Energy Loss Spectroscopy results with Density Functional Theory**
Joachim Paier¹, Connie J. Nelin², Paul S. Bagus³, Agata Plucienik⁴,
Helmut Kuhlenbeck⁴, Hans-Joachim Freund⁴
¹Friedrich-Alexander Universität Erlangen-Nürnberg, Germany
²6008 Maury's Trail, Austin (TX), USA
³Department of Chemistry, University of North Texas, Denton (TX), USA
⁴Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany
- P010** **Benchmarking vibrational frequencies of molecules on surfaces: The
weakly bound CO on CeO₂ surfaces**
Juana Vázquez Quesada, Karin Fink
Karlsruher Institut für Technologie, Karlsruhe, Germany
- P011** **Ni-supported Pr-doped CeO₂/Al₂O₃ catalysts for enhanced CO₂
methanation: An experimental and theoretical study**
Ayesha Alkhoori¹, Aasif Dabbawala¹, Messaoud Harfouche², Omer Elmutasim¹,
Michalis Vasiliades³, Nikolaos Charisiou⁴, Dalaver Anjum⁵, Mark Baker⁶,
Maria Goula⁴, Angelos Efstathiou³, Kyriaki Polychronopoulou¹
¹Center for Catalysis and Separation, Khalifa University of Science & Technology,
Abu Dhabi, United Arab Emirates
²Synchrotron-Light for Experimental Science and Applications in the Middle East,
Jordan
³Department of Chemistry, University of Cyprus, Nicosia, Cyprus
⁴Department of Chemical Engineering, University of Western Macedonia, Kozani,
Greece
⁵Department of Physics, Khalifa University of Science & Technology, Abu Dhabi,
United Arab Emirates
⁶University of Surrey, Guildford, United Kingdom
- P012** **Ceria-supported PdAu nanoparticles for the selective oxidation of methane
to methanol: Insights from DFT**
Estefanía Fernández Villanueva^{1,2,3}, Pablo Germán Lustemberg², Rubén Pérez^{3,4},
M. Verónica Ganduglia-Pirovano², José A. Rodríguez^{5,6}
¹Universitat Politècnica de València, Spain
²Instituto de Catálisis y Petroleoquímica, Madrid, Spain
³Departamento de Física Teórica de la Materia Condensada, Universidad Autónoma
de Madrid, Spain
⁴Condensed Matter Physics Center, Universidad Autónoma de Madrid, Spain
⁵Brookhaven National Laboratory, Upton (NY), USA
⁶Department of Chemistry, State University of New York, Stony Brook (NY), USA

- P013** **Enhancing oxygen vacancies in TiO₂/CeO₂ interactions for improved CO₂ conversion to alternative fuel additives: Application of artificial neural networks**
Praveen Kumar¹, Ramanpreet Kaur², Urška Lavrenčič Štangar¹
¹*Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia*
²*Laboratory for Open Systems and Networks, Jožef Stefan Institute, Ljubljana, Slovenia*
- P014** **Interfacial effects of cerium oxide-supported metal nanomaterials in tuning C1 catalytic reactivities**
Yawen Zhang
College of Chemistry and Molecular Engineering, Peking University, Beijing, China
- P015** **Elucidation of SMSI effect in nickel-ceria catalytic systems**
Alfonso Caballero, Juan P. Holgado, Rosa Pereñíguez,
Victor M. Gonzalez de la Cruz
Instituto de Ciencia de Materiales de Sevilla and Dep. Química Inorgánica (CSIC-Universidad de Sevilla), Sevilla, Spain
- P016** **SrTiO₃-supported ceria monolayers: Atomic resolution structure and redox properties**
Ramon Manzorro, Jose M. Montes-Monroy, Ana B. Hungría, Jose J. Calvino,
Jose A. Perez-Omil
University of Cadiz, Spain
- P017** **Cerium oxide study by soft X-ray photoelectron spectroscopy**
Nataliya Tsud¹, Tomáš Skála¹, Kevin C. Prince^{1,2}, Vladimír Matolín¹,
Iva Matolínová¹
¹*Charles University, Prague, Czech Republic*
²*Elettra-Sincrotrone Trieste, Italy*
- P018** **Spectroscopic investigations on pure and Pt-deposited ceria surfaces: From single crystals to powders**
Yuemin Wang
Karlsruhe Institute of Technology, Germany
- P019** **Lessons from NAP-XPS on methane dry reforming over Co-M/CeO₂**
Yake Lou^{1,2}, Marina Armengol¹, Núria J. Divins¹, Virginia Pérez-Dieste³, Yun Guo²,
Jordi Llorca¹
¹*Technical University of Catalonia - BarcelonaTech, Barcelona, Spain*
²*East China University of Science and Technology, Shanghai, China*
³*ALBA Synchrotron Light Source, Barcelona, Spain*
- P020** **Operando/in situ characterization of NiRu supported on CeO₂ obtained by mechanochemical milling as catalyst for hydrogen production from ammonia**
Ilaria Lucentini^{1,2}, Isabel Serrano¹, Xènia García¹, Carlos Escudero², Jordi Llorca¹
¹*Universitat Politècnica de Catalunya, Barcelona, Spain*
²*ALBA Synchrotron, Barcelona, Spain*

- P021** ***Operando* NAP-XPS studies of model Pd/ceria and inverse ceria/Pd systems prepared by ALD for CO oxidation**
Xènia Garcia¹, Lluís Soler¹, Xavier Vendrell², Isabel Serrano¹, Jordi Prat³, Eduardo Solano³, Massimo Tallarida³, Cristián Huck-Iriart³, Carlos Escudero³, Jordi Llorca¹
¹*Universitat Politècnica de Catalunya, Barcelona, Spain*
²*Universitat de Barcelona, Spain*
³*ALBA Synchrotron Light Source, Barcelona, Spain*
- P022** ***In situ* spectroscopy and microscopy insights into the CO oxidation mechanism on Au/CeO₂(111)**
Lesia Piliari, Peter Matvija, Thu Ngan Dinhová, Ivan Khalakhan, Tomas Skála, Michael Vorochta, Iva Matolínová
Charles University, Prague, Czech Republic
- P023** **Noble metal co-location and CeO₂ support morphology: Impact on catalytic performances of supported Pd-Pt**
Paolo Dolcet^{1,2}, Andrea De Giacinto^{1,2}, Maria Casapu², Jan-Dierk Grunwaldt², Silvia Gross^{1,2}
¹*University of Padova, Italy*
²*Karlsruhe Institute of Technology, Germany*
- P024** **Pd catalysts supported on CeO₂ prepared under modified atmosphere by planetary ball milling for low-temperature CO oxidation reaction**
Enrique David Marín Rivas¹, Xavier Vendrell², Jordi Llorca¹
¹*Universitat Politècnica de Catalunya, Barcelona, Spain*
²*Universitat de Barcelona, Spain*
- P025** **Novel aerosol-made CuO-CeO₂ nanomaterials as competitive catalysts for low temperature oxidation of CO and ethylene**
Enrico Sartoretti¹, Giovanni Pampararo², Chiara Novara¹, Damien P. Debecker², Samir Bensaid¹
¹*Politecnico di Torino, Italy*
²*Université catholique de Louvain, Louvain-la-Neuve, Belgium*
- P026** **Systematic evaluation of the impact of Pt-Pd and noble metal - ceria interactions on the activity of bimetallic methane oxidation catalysts**
Joachim Czechowsky¹, Hannah Seufert¹, Christian Schmitt², Carina B. Maliakkal³, Jan-Dierk Grunwaldt^{1,2}, Silke Behrens², Maria Casapu¹
¹*Institute for Chemical Technology and Polymer Chemistry, Karlsruhe Institute of Technology, Germany*
²*Institute of Catalysis Research and Technology, Karlsruhe Institute of Technology, Germany*
³*Institute of Nanotechnology, Karlsruhe Institute of Technology, Germany*
- P027** **Cu-modified ceria for carbon monoxide gas sensing – Inspired by CO-PROX catalysis**
Dominik Baier¹, Tatiana Priamushko², Christian Weinberger¹, Freddy Kleitz², Michael Tiemann¹
¹*Department of Chemistry, Paderborn University, Germany*
²*Department of Inorganic Chemistry, University of Vienna, Austria*

- P028** **Light-assisted Reverse Water Gas Shift reaction over Cu/Ce_xTi_{1-x}O₂ catalyst**
SPC Miha Okorn^{1,2}, Petar Djinović^{1,2}
¹National Institute of Chemistry, Ljubljana, Slovenia
²University of Nova Gorica, Slovenia
- P029** **CeO₂-based catalysts for hydrothermal reduction of CO₂ to formic acid by an indirect hydrogen source**
Vikram Sagar Tatiparthi, Praveen Kumar, Urška Lavrenčič Štangar
Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia
- P030** **CO₂ methanation over nanostructured Ni/CeO₂**
SPC Xuan Lu^{1,2,3}, Andreu Cabot³, Jordi Llorca^{1,2}
¹Department of Chemical Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain
²Institute of Energy Technologies, Universitat Politècnica de Catalunya, Barcelona, Spain
³Catalonia Energy Research Institute – IREC, Barcelona, Spain
- P031** **CO₂ methanation on Ni/Ce_{0.8}TiO_{2-δ}: The effect of Ni particle size studied by operando SSITKA-DRIFTS/MS**
Georgia-Maria Zarkou, Michalis A. Vasiliades, Angelos M. Efstathiou
University of Cyprus, Nicosia, Cyprus
- P032** **Acidic dopants in Ru-ceria CO₂ methanation catalysts**
Maïla Danielis, Alessandro Trovarelli, Sara Colussi
Università degli Studi di Udine, Italy
- P033** **CO₂ methanation over Ni catalysts supported on CeO₂ and CeSmO_x: The influence of adding Sm**
Sichen Liu¹, Fabian Rachow¹, Evgenia Charlafti¹, Raquel Sánchez-Barquilla¹, Luisa Gómez-Sainero², Vicente Cortés Corberán³, Jan Ingo Flege¹
¹Brandenburgische Technische Universität, Cottbus, Germany
²Universidad Autónoma de Madrid, Spain
³Instituto de Catálisis y Petroleoquímica (CSIC), Madrid, Spain
- P034** **Indium-enhanced longevity of an impregnated Ni/CeO₂-Al₂O₃ dry reforming catalyst**
Anita Horváth¹, Miklós Németh¹, Andrea Beck¹, György Sáfrán¹, Valeria La Parola², Leonarda Francesca Liotta², Gregor Žerjav³, Matevž Roškarič³, Albin Pintar³
¹Centre for Energy Research, Budapest, Hungary
²Institute for the Study of Nanostructured Materials, National Research Council (ISMN -CNR), Palermo, Italy
³Department of Inorganic Chemistry and Technology, National Institute of Chemistry, Ljubljana, Slovenia

- P035** **Influence of indium addition to Ni/CeO₂ catalyst for dry reforming of methane**
Anita Horváth¹, Andrea Beck¹, Miklós Németh¹, György Sáfrán², Matevž Roškarič³, Gregor Žerjav³, Albin Pintar³
¹*Department of Surface Chemistry and Catalysis, Centre for Energy Research, Budapest, Hungary*
²*Thin Film Physics Department, Centre for Energy Research, Budapest, Hungary*
³*Department of Inorganic Chemistry and Technology, National Institute of Chemistry, Ljubljana, Slovenia*
- P036** **Enhancing the performance of bimetallic Co-based catalysts for the dry reforming of methane**
Núria J. Divins, Marina Armengol-Profítos, Jordi Llorca
Technical University of Catalonia, Barcelona, Spain
- P037** **Influence of the pre-treatment on the activity and regenerability of Ni/CeZrSmO_x catalysts for dry reforming of methane**
SPC
Karen Cecilia Pájaro Ávila, Raúl de Antonio Hernández, Arturo Martínez-Arias, Vicente Cortés Corberán
Institute of Catalysis and Petrochemistry, Madrid, Spain
- P038** **Why ceria nanoshapes perform differently in the low temperature DRM reaction?**
Kristijan Lorber¹, Petar Djinović^{1,2}
¹*National Institute of Chemistry, Ljubljana, Slovenia*
²*University of Nova Gorica, Slovenia*
- P039** **Direct CO₂ hydrogenation via Fischer-Tropsch synthesis over cobalt catalyst supported on La-doped cerium oxide**
SPC
Naoki Wachi¹, Hikaru Konno¹, Akihide Yanagita¹, Keigo Tashiro¹, Shunta Mikami², Shuhei Shimoda³, Erika Taira⁴, David S Rivera Rocabado², Ken-ichi Shimizu^{3,5}, Takayoshi Ishimoto², Shigeo Satokawa¹
¹*Faculty of Science and Technology, Seikei University, Tokyo, Japan*
²*Faculty of Advance Science and Engineering, Hiroshima University, Japan*
³*Institute for Catalysis, Hokkaido University, Sapporo, Japan*
⁴*Applicative Solution Lab Division, JASCO Corporation, Tokyo, Japan*
⁵*Center for Energy System Design, International Institute for Carbon-Neutral Energy Research, Kyushu University, Fukuoka, Japan*
- P040** **Direct CO₂ hydrogenation via Fischer-Tropsch synthesis over cobalt catalyst supported on using rare earth metal doped cerium oxide**
SPC
Kimiki Goto, Hikaru Konno, Aoha Uchida, Akihide Yanagita, Keigo Tashiro, Shigeo Satokawa
Faculty of Science and Technology, Seikei University, Tokyo, Japan
- P041** **Structural relations of Au nanoparticles on ZrO₂-CeO₂ supports to the products distribution of CO₂ hydrogenation**
Hue-Tong Vu¹, Matjaž Finšgar², Janez Zavašnik³, Nataša Novak Tušar¹, Albin Pintar¹
¹*Department of Inorganic Chemistry and Technology, National Institute of Chemistry, Ljubljana, Slovenia*
²*Faculty of Chemistry and Chemical Engineering, University of Maribor, Slovenia*
³*Gaseous Electronics, Jožef Stefan Institute, Ljubljana, Slovenia*

- P042** **Examining the effect of morphology and surface properties of nanoshaped Pd/CeO₂ catalysts on CO₂ hydrogenation to methanol**
 Rohini Khobragade¹, Matevž Roškarič¹, Gregor Žerjav¹, Ivan Jerman¹, Janez Zavašnik², Albin Pintar¹
¹National Institute of Chemistry, Ljubljana, Slovenia
²Gaseous Electronics, Jožef Stefan Institute, Ljubljana, Slovenia
- P043** **Ag/CeMnO_x composite for soot combustion and SCR-NO_x**
 Ekaterina Sergeevna Lvova, Tamara Sergeevna Kharlamova, Maria Vladimirovna Grabchenko, Tatiana Aleksandrovna Bugrova, Olga Vladimirovna Vodyankina
 Tomsk State University, Russian Federation
- P044** **Effect of iron-doped ceria-praseodymium catalyst on soot oxidation activity**
Sunaina S. Patil, Hari Dasari
 National Institute of Technology Karnataka, Mangalore, India
- P045** **Ceria-based PGM-less catalysts for CO oxidation and soot combustion**
 Maria V. Grabchenko, Natalia V. Dorofeeva, Anna S. Savel'eva, Maria V. Chernykh, Natalia N. Mikheeva, Pavel K. Putanenko, Arina A. Salaeva, Grigory V. Mamontov, Olga V. Vodyankina, Mikhail A. Salaev
 Tomsk State University, Russian Federation
- P046** **Understanding the aging behaviour of three-way catalysts during long-term application**
Sarina-Lena Heck¹, Paolo Dolcet¹, Gülperi Nails¹, Jan-Dierk Grunwaldt^{1,2}, Maria Casapu¹
¹Institute for Chemical Technology and Polymer Chemistry, Karlsruhe Institute of Technology, Germany
²Institute of Catalysis Research and Technology, Karlsruhe Institute of Technology, Germany
- P047** **Kinetic investigation of ammonia decomposition over highly active Ru/CeO₂ catalysts**
Yi Qiu¹, Alessandra Beretta¹, Rudy Calligaro², Alessandro Trovarelli², Enzo Alessio³
¹Dipartimento di Energia, Politecnico di Milano, Italy
²Dipartimento Politecnico di Ingegneria e Architettura, Università degli Studi di Udine, Italy
³Dipartimento di Scienze Chimiche e Farmaceutiche, Università degli Studi di Trieste, Italy
- P048** **Hydrolytic cleavage of organophosphates, sulfonamides and other molecules on nanoceria**
Jiří Henych^{1,2}, Jakub Ederer², Martin Štátný¹, Pavel Janoš²
¹Institute of Inorganic Chemistry of the Czech Academy of Sciences, Husinec-Řež, Czech Republic
²Faculty of Environment, Jan Evangelista Purkyně University, Ústí nad Labem, Czech Republic

Legend: SPC – Student paper contest



4TH INTERNATIONAL CONFERENCE ON FUNDAMENTALS AND APPLICATIONS OF CERIUM DIOXIDE IN CATALYSIS

GRAND HOTEL BERNARDIN
PORTOROŽ-PORTOROSE
SLOVENIA



E-POSTERS



Slovensko kemijsko društvo
Slovenian Chemical Society

Social events



Get-together party

Tuesday, 17 September 2024 • 20:00-22:00

To welcome the participants of the Ceria 2024 Conference, an informal get-together will take place in the Cocktail Lounge and Piano Bar of the Grand Hotel Bernardin. During the evening you will enjoy a selection of drinks, a cold/hot buffet and light music. The get-together party is included in the registration fee. Dress code: *Casual*

Conference dinner

Thursday, 19 September 2024 • 20:00-23:59

The conference dinner, which will take place at the Terrace International of the St. Bernardin Adriatic Resort and Convention Center, is included in the registration fee. The fee covers an aperitif followed by a regional meal accompanied by excellent Slovenian wines. An entertainment programme will also be offered. Dress code: *Business Casual*

Guided tour to Piran-Pirano

Wednesday, 18 September 2024

The most beautiful town on the Slovenian coast grew with the help of salt. The Piran salt pans, where the world-famous fleur de sel (the flower of salt) is still produced today according to ancient methods, were the reason for the flourishing of this picturesque Mediterranean town with its city walls, its church with a view and its cultural sights. The old harbour town with the remains of a mediaeval town wall is protected as a cultural and historical monument. Narrow streets with closely built houses leading from the hill and the church down to the central square on the coast emphasize the Mediterranean character of the town. This secular coastal town, which developed under the influence of Venice, is considered one of the most authentic and photogenic towns on the Adriatic coast.



Programme

- 19:00 Meeting with a local tour guide at the beach area of the Grand Hotel Bernardin
- 19:15-21:00 Walk to Piran-Pirano (approx. 15 minutes) with a guided tour

General information

Map



Language

The official language in Slovenia is the Slovene language. Beside the mother tongue, most Slovenians speak also at least one foreign language, most frequently English, German and Italian.

Climate

The Ceria 2024 Conference will take place in the Mediterranean region of Slovenia. In the mid of September the temperatures are expected to range from 19 degree Celsius at night up to 30 degree Celsius during the day. The temperature of the sea should be around 25 degree Celsius, warm enough for swimming.

Currency

The currency in Slovenia is Euro (EUR). There are many exchange offices and banks available for changing money, so rates should not get worse even for less frequent currencies.

Credit cards

MasterCard/Eurocard, Visa, Diners and American Express are the most frequently used credit cards in Slovenia. They are accepted in hotels, restaurants, stores and taxis.

Cash dispensers

Cash dispensers are available in all banks. ATMs are also available in the lobby of the Grand Hotel Bernardin (11th floor), in Hotel Histron and in the shopping street in St. Bernardin Resort.

Electricity

Power supply is 230 V AC, 50 Hz. It is recommended to have a suitable plug-in for Slovenian standard (i.e. EU plug types C and F).

Parking

Free outdoor parking area will be provided for the conference participants.

Public transport

For general transport, taxis are numerous and readily available. All taxis are equipped with a taximeter. Pay in Euro only the fare shown on the meter. There is a supplementary charge for luggage carried in the boot of the car. Public bus services are frequent. Bus tickets/tokens may be bought at most newspaper kiosks and tobacconists.

Name badges

All participants are kindly requested to wear their name badges throughout the conference. In case you lost your badge, a new one will be available at the registration desk.

Wi-Fi internet access

For the duration of the Ceria 2024 Conference, Wi-Fi internet access will be available free of charge in Grand Hotel Bernardin Convention Center.

Conference language

All sessions will be held in English. There will be no simultaneous translation.

Coffee breaks

Coffee, tea and refreshments will be served in the exhibition and poster area and are included in the registration fee.

Lunch

Ceria 2024 Conference participants will be offered a buffet-style business lunch at the Restaurant Sunset on the 10th floor of the Grand Hotel Bernardin. The menu includes soups, pastas and risottos, main dishes, a salad selection and a sweet selection. Drinks, except for water, are paid for by the guests themselves. The nutritional needs of the participants will be taken into account.

Photography

The use of cameras, video cameras and cellphone photography is prohibited during program sessions or in the poster exhibition.

No-smoking policy

For the comfort and health of all attendees, the Ceria 2024 Conference 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.

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

Responsibility for personal accidents and damage to private property of participants is not accepted by the Organizing Committee of the Ceria 2024 Conference. Participants should therefore make their own arrangements with respect to personal insurance if they wish. Participants from countries having a Health Insurance Convention with Slovenia must bear a valid Certificate of Insurance; others must pay the cost of medical treatment.

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