## Conference Schedule

**SUNDAY 27 Nov.**

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<tr>
<td>8:00 - 9:00</td>
<td>Registration</td>
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**MONDAY 28 Nov.**

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**TUESDAY 29 Nov.**

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<td>Registration</td>
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**WEDNESDAY 30 Nov.**

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<td>15:00 - 15:40</td>
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<td>15:40 - 16:00</td>
<td>Room 2</td>
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<td>16:00 - 16:20</td>
<td>Coffee Break</td>
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<td>16:20 - 16:40</td>
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<td>17:00 - 17:20</td>
<td>Coffee Break</td>
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<td>18:00 - 18:20</td>
<td>Coffee Break</td>
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<td>18:20 - 18:40</td>
<td>Room 1</td>
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<td>18:40 - 19:00</td>
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<td>19:00 - 19:20</td>
<td>Coffee Break</td>
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<td>19:20 - 19:40</td>
<td>Room 1</td>
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<td>19:40 - 20:00</td>
<td>Room 2</td>
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<tr>
<td>20:00 - 20:20</td>
<td>Coffee Break</td>
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**Colour Legend:**

- **Keynote**
- **S1 - Challenges in Molecular Electrochemistry and Surface Reactivity**
- **S2 - Experimental, Theoretical and Computational Advances in Electrochemistry and Electrocatalysis**

**Bus departure time:**

- **14:30**
- **21:00**
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<td>8:00</td>
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<td>9:00</td>
<td>Keynote 1: Challenges in Molecular Electrochemistry and Surface Reactivity</td>
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<td>Oral Presentations</td>
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<td>Coffee Break</td>
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<td>11:40</td>
<td>Coffee Break</td>
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<tr>
<td>12:00</td>
<td>Lunch at La Provincia Restaurant</td>
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<tr>
<td>14:30</td>
<td>Bus Departure Time</td>
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<tr>
<td>15:00</td>
<td>Keynote 2: Estudio #1</td>
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<tr>
<td>15:40</td>
<td>Poster Session</td>
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<tr>
<td>16:30</td>
<td>Winemaker Experience at Viña Casas del Bosque</td>
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<tr>
<td>17:30</td>
<td>Opening Ceremony</td>
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<tr>
<td>19:30</td>
<td>Welcome Reception</td>
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<td>20:30</td>
<td>Gala Dinner</td>
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<tr>
<td>21:00</td>
<td>Bus Departure Time</td>
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</table>
Rational design of molecular catalytic for energy conversion and electrochemical reactions

E - Electrocatalysis and Bioelectrocatalysis Laboratory
Universidad de Santiago de Chile

Exhibitors

OrigaLys - Specialist in electrochemical analysis and measurement equipment

Metrohm - Innovative solutions for your analysis
Program of the

33rd Topical Meeting of the International Society of Electrochemistry

Challenges in Molecular Electrochemistry and Surface Reactivity

27-30 November 2022. Santiago, Chile

USACH - Centro de estudios de postgrado y educación continua
Cruz del Sur 77, Las Condes, Santiago, Chile

Organized by:
Division 6 Molecular Electrochemistry
Division 7 Physical Electrochemistry
ISE Region Chile
Organizing Committee

Federico Tasca, *USACb, Santiago, Chile*
Jose Zagal, *USACb, Santiago, Chile*
Magdalena Hromadova, *University of Prague, Czech Republic*
Angel Cuesta, *University of Aberdeen, United Kingdom*

Local Organizing Committee

Ingrid Ponce, *USACb*
Jorge Pavez, *USACb*
Walter Orellana, *UNAB*
Alejandro Toro, *UC*
Arturo Squella, *CIQ*
# Table of Contents

Front Matter........................................................................................................... i - iv

Important information.............................................................................................. 2

*Oral presentation program*
  - Monday morning.............................................................................................. 6
  - Monday afternoon.............................................................................................. 10
  - Tuesday morning.............................................................................................. 11
  - Tuesday afternoon............................................................................................. 15
  - Wednesday morning.......................................................................................... 16

*Poster presentations*............................................................................................... 19
  - Monday & Tuesday: *Posters of symposia 1 & 2*

Index.......................................................................................................................... 27
Sunday 27 November

Registration

Estudio #1

15:00 to 17:00 Registration

Opening Ceremony

Auditorium

17:00 to 17:30 Opening Ceremony

S1 - Challenges in Molecular Electrochemistry and Surface Reactivity

Auditorium

Chaired by: Jose Zagal & Federico Tasca

17:30 to 18:30 Keynote

Marc Koper (Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands)

Mechanisms of electrochemical hydrogen evolution and CO₂ reduction

Welcome Reception

La Provincia

18:30 to 20:30 Welcome Reception

“La Provincia” is on the western corner of the conference building.

Av. Apoquindo 4445, local 1, 7550000 Las Condes, Región Metropolitana
Monday 28 November

Registration

**Estudio #1**

08:00 to 09:00  **Registration**

Wednesday 30 November

Excursion & Gala Dinner

14:30  **Bus depart**

Departure from the conference site

16:15  **Viña Casas del Bosque**

Winemaker Experience: A challenge between teams at making the best assemblage with a final competition and rewards.

18:30  **Viña Casas del Bosque**

Cocktail and Gala Dinner

21:00  **Bus return**

Departure from Viña Casas del Bosque.
34th Topical Meeting
of the International Society of Electrochemistry
Electrochemistry: Reaching out to society
19 - 22 March 2023 - Mar del Plata, Argentina.

Call for Papers
http://topical34.ise-online.org

35th Topical Meeting
of the International Society of Electrochemistry
Electrochemistry for energy, environment and health: Key challenges and enabling solutions
7 - 10 May 2023 - Gold Coast, Australia

Call for Papers
http://topical35.ise-online.org
Oral Presentations
Monday 28 November - Morning

S1 - Challenges in Molecular Electrochemistry and Surface Reactivity

Room 1

Chaired by: Lior Elbaz 9:00-10:40 / Magdalena Hromanova 11:20 - 12:40

09:00 to 09:40 Keynote

Magdalena Hromadova (Electrochemistry at the Nanoscale, J. Heyrovsky Institute of Physical Chemistry of CAS, Prague, Czech Republic),
Magdaléna Hromadová, Philippe P Lainé

Bipyridinium-Based Structronic Assemblies: Multielectron Transfer and Storage.

09:40 to 10:00 Invited

Philippe Hapiot (Institut des Sciences Chimiques de Rennes, CNRS - Université de Rennes 1, Rennes, France), Fangchen Zhen

Electron Transfer Kinetics in Ethaline as an Example of Deep Eutectics Solvent.

10:00 to 10:20 Invited

Pawel Kulesza (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Anna Chmielnicka, Iwona A. Rutkowska

Electrocatalytic CO\textsubscript{2}-Reduction in Acid Medium at Hybrid Metal/Metal Oxide Systems

10:20 to 10:40

Gonzalo García (Department of Chemistry, Universidad De La Laguna, San Cristobal De La Laguna, Spain), Sergio Díaz Coello

Transition Metal Carbides-Based Composites as Electrocatalysts for the Hydrogen Evolution Reaction

10:40 to 11:20

Coffee Break
11:20 to 11:40

**Adrian Fortuin** *(Computational Material Design, Helmut Schmidt University, Hamburg, Germany), Tim Albrecht, Adrian Fortuin, Denis Kramer*

Unlocking Electrocatalytic Activity Through Quantum Spin Exchange Interactions

11:40 to 12:00

**Diego Maureira** *(School of Biochemical Engineering, P. Universidad Catolica de Valparaiso, VALPARAISO, Chile), Debora Fino, Hilmar Guzmán, Simelys Hernández, Carminna Ottone, Tonia Tommasi, Lorena Wilson*

Deposition of metal-oxides on carbon felt for the electroenzymatic conversion of CO₂

12:00 to 12:40 Keynote

**Ernesto Julio Calvo** *(INQUIMAE-DQFAyQF, Universidad de Buenos Aires, Buenos Aires, Argentina), Daniel Cordoba, Hernan Bernardo Rodriguez*

New In Operando Detection of Singlet Oxygen Inside a Li-O₂ Battery
S2 - Experimental, Theoretical and Computational Advances in Electrochemistry and Electrocatalysis

Room 2

Chaired by: Justus Masa 9:00-10:40 / Deborah Jones 11:20 - 12:20

09:00 to 09:40 Keynote

Deborah Jones (ICGM, CNRS, Montpellier, France), Pierre-Yves Blanchard, Carlos Campos Roldan, Sara Cavaliere, Raphaël Chattot, Nicolas Donzel, Marc Dupont, Frédéric Lecoeur, Alice Parnière, Jacques Rozière

Structure-Reactivity Relationships and Reactivity Descriptors for the Rational Design of Pt-Rare Earth Catalytic Surfaces

09:40 to 10:00

Tomas Navratil (Electrochemistry at the Nanoscale, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic), Marta Choinska-Mlynarczyk, Vojtech Hrdlicka, Jan Langmaier, Jana Skopalova

Voltammetric Approaches for Determination and Characterization of Addictive Substances

10:00 to 10:20

Heigo Ers (Institute of Chemistry, University of Tartu, Tartu, Estonia), Enn Lust, Piret Pikma, Liis Siinor

Studying Cd | Ionic Liquid Interface - Insights from in situ STM and EIS

10:20 to 10:40 Invited

Roberto Torresi (Química Fundamental, Instituto de Química - Universidade de São Paulo, São Paulo, Brazil), Fábio Henrique Barros de Lima, Paulo Filho Marques de Oliveira, Rafael Romano Luiz, Primaggio Silva Mantovi

Studying Supported Cu and Ag Nanoparticles at 2D Materials to Enhance C2+ Products at CO2RR
10:40 to 11:20
Coffee Break

11:20 to 11:40
Matteo Miola (Product Technology - Engineering and Technology Institute, Groningen University, Groningen, Netherlands), Donatella Chillé, Paola Lanzafame, Gerogia Papanikolaou, Paolo P. Pescarmona
Towards the electrochemical conversion of CO₂ into formate optimization: Flow cell parameters and bismuth-based catalyst stability

11:40 to 12:00 Invited
Susana Cordoba de Torresi (Instituto de Química, Universidade de São Paulo, São Paulo, Brazil)
Gold-Rhodium Nanoflowers for the Plasmon-Enhanced Hydrogen Evolution Reaction under Visible Light

12:00 to 12:20
Andrii Koverga (Institute of Chemistry of São Carlos, Universidade de São Paulo, São Carlos, Brazil), Ana Maria Gomez Marin, Elizabeth Florez, Edson Ticianelli
Tuning Fundamental Properties of Molybdenum Carbide for Application in Catalysis
Monday 28 November - Afternoon

S1 - Challenges in Molecular Electrochemistry and Surface Reactivity

Room 1

Chaired by: Gonzalo García

15:00 to 15:40 Keynote

Jiří Ludvík (Molecular Electrochemistry and Catalysis, Ústav Fyzikální Chemie J. Heyrovského AV CR, Praha 8, Czech Republic), Alan Liska

Reducible Calix[4]arenes and Stereoelectrochemistry

15:40 to 16:00

Coffee Break

S2 - Experimental, Theoretical and Computational Advances in Electrochemistry and Electrocatalysis

Room 2

Chaired by: Matteo Grattieri

15:00 to 15:40 Keynote

Lo Gorton (Department of Biochemistry and Structural Biology, Lund University, Lund, Sweden)

Electrode Surface Modification for Improved Bioelectrocatalysis

15:40 to 16:00

Coffee Break
Tuesday 29 November - Morning

S1 - Challenges in Molecular Electrochemistry and Surface Reactivity

Room 1

Chaired by: Angel Cuesta 9:00-10:40 / Ingrid Ponce 11:20 - 12:20

09:00 to 09:40 Keynote

Justus Masa (Heterogeneous Catalysis, Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany)

*Elucidation of the transient dynamics of M-Xides (X = B and P) during electrocatalytic oxygen evolution and design considerations for long-term performance*

09:40 to 10:00

Iwona Rutkowska (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Paweł J. Kulesza, Beata Rytelewska

*Electrocatalytic oxidation of dimethyl ether at multifunctional nanoreactors: comparison to performance of other simple organic fuels*

10:00 to 10:20

Piret Pikma (Institute of Chemistry, University of Tartu, Tartu, Estonia), Heigo Ers, Liis Siinor

*The adsorption of bipyridines on various electrodes from aqueous and ionic liquid electrolytes*

10:20 to 10:40

Sho Fujita (Chemistry, Queen’s University, Kingston, Canada), Stève Baranton, Christophe Coutanceau, Gregory Jerkiewicz

*Effect of Absorbed Hydrogen on Shape-Controlled Pd Nanoparticles for Energy Storage Applications*

10:40 to 11:20

Coffee Break
11:20 to 11:40

Mahdi Moghaddam (Mechanical and Materials Engineering, University of Turku, Turku, Finland), Louis Godéffroy, Jerzy Jasielec, Frédéric Kanoufi, Nikolaos Kostopoulos, Jean-François Lemineur, Jean-Marc Noël, Pekka Peljo

Thermodynamics and Kinetics of Charge Transfer in Solid Boosted Flow Batteries: Case of CuHCF and TEMPTMA

11:40 to 12:00

Gyeong-Geon Lee (Chemistry Education, Seoul National University, Seoul, Korea), Hun-Gi Hong

Catalytically Synthesized Prussian Blue by a One-Step Copolymerization of Polydopamine-Polypyrrole for Electrochemical Sensing of Hydrogen Peroxide

12:00 to 12:20

Cuibo Liu (Institute of Molecular Plus, Tianjin University, Tianjin, China)

Electrocatalytic Deuteration using D2O over Nanostructured Cathode Materials
S2 - Experimental, Theoretical and Computational Advances in Electrochemistry and Electrocatalysis

Room 2

Chaired by: Walter Orellana 9:00-10:40 / Catalina Astudillo 11:20 - 12:20

09:00 to 09:40 Keynote

Lior Elbaz (Chemistry, Bar Ilan University, Ramat-Gan, Israel)
Development of Electrochemical Activity Descriptor for PGM-free ORR Catalysts

09:40 to 10:00

César Zúñiga (Department Materials Chemistry, University of Santiago de Chile, Santiago, Chile), Federico Tasca
Pentacoordinated Fe Phthalocyanine as Bifunctional Catalyst for the Oxygen Reduction Reaction and the Oxygen Evolution Reaction

10:00 to 10:20

Mohammadreza Karamad (Physics, University of Calgary, Calgary, Canada),
Transition Metal Nitrides for Electrochemical CO Reduction Reaction

10:20 to 10:40

Catalina Astudillo (Department of Nanocatalysis, J. Heyrovsky Institute of Physical Chemistry of CAS, Prague, Czech Republic), Petr Krtíl, Katerina Minhova-Macounova, Roman Nebel
Selectivity of doped Ru-rich oxides in parallel oxygen and chlorine evolution reactions

10:40 to 11:20

Coffee Break

11:20 to 11:40 Invited

Axel Gross (Institute of Theoretical Chemistry, Ulm University, Ulm, Germany)
Atomistic View on Catalytic Surfaces in Interfacial Electrochemistry
11:40 to 12:00

**Gonzalo Escobar** *(departamento de Química-Física, Pontificia Universidad Católica de Chile, Santiago, Chile)*, Gonzalo Escobar, Karina Muñoz, Alejandro Toro, Jose Zagal

Evidencing the effects of ligands substitution in pyridinic macrocycles to model the active sites of carbon-based ORR catalysts: activity descriptors and electron delocalization analysis.

12:00 to 12:20

**Daniel Gomez Bustos** *(Department of Chemistry and Biochemistry, University of Texas at El Paso, El Paso, USA)*, Balazs Pinter

Tandem photoredox catalysis of \([\text{Ir(ppy)₂(dtb-bpy)}]\): Identifying the co-catalyst by DFT
Tuesday 29 November 2022 - Afternoon

S1 - Challenges in Molecular Electrochemistry and Surface Reactivity

Room 1

*Chaired by: Jose Zagal*

**15:00 to 15:40 Keynote**

Daniel Scherson *(Chemistry, Case Western Reserve University, Cleveland, USA)*, Nicholas Georgescu, Qi Han, Arvind Singh Heer, Harlan Mantelli

Electrochemical Stimulation of Monopolar Electrodes

**15:40 to 16:00**

Coffee Break

S2 - Experimental, Theoretical and Computational Advances in Electrochemistry and Electrocatalysis

Room 2

*Chaired by: Federico Tasca*

**15:00 to 15:40 Keynote**

Matteo Grattieri *(Chemistry, Università degli Studi di Bari Aldo Moro, Bari, Italy)*, Angela Agostiano, M. Lucia Curri, Elisabetta Fanizza, Gianluca M. Farinola, Rossella Labarile, Pierluigi Lasala, Paolo Stufano, Massimo Trotta, Danilo Vona, Lilian de Moura Torquato

Tuning Intact Photosynthetic Bacteria-Electrode Interfaces: from Biophotocurrent Generation to Biosensor Development

**15:40 to 16:00**

Coffee Break
Wednesday 30 November - Morning

S1 - Challenges in Molecular Electrochemistry and Surface Reactivity

Room 1

Chair by: Lo Gorton 9:00-10:40 / Justus Masa 11:20-11:40

09:00 to 09:40 Keynote

Angel Cuesta (Department of Chemistry, University of Aberdeen, Aberdeen, United Kingdom), Laura Perez-Martinez

The Dehydrogenation of Methanol on Pt Electrodes as Revealed by Time-Resolved ATR-SEIRAS

09:40 to 10:00

Kengo Hamada (Kawasaki Technical Support Department, Kanagawa Institute of Industrial Science and Technology, Kawasaki, Japan), Yasuhisa Akutsu, Daisuke Aoki, Yasuo Hirabayashi, Tsuyoshi Ochiai

Evaluation of slight amounts of intermediate products in photocatalytic reactions

10:00 to 10:20

Tsuyoshi Ochiai (Materials Analysis Group, Kawasaki Technical Support Department, Kanagawa Institute of Industrial Science and Technology (KISTEC), Kawasaki, Japan), Kengo Hamada, Moe Sasaki, Tsukaho Yahagi

Electrolytic ozone generation at Pt nano-sponge electrode prepared by multiple electrostrike method

10:20 to 10:40

Janika Wagner (IAM - Electrochemical Technologies, Karlsruhe Institute for Technology, Karlsruhe, Germany), Perla B. Balbuena, Ulrike Krewer, Dacheng Kuai

Model-Based Investigation of the Influence of the Electrolyte Additive VC on the initial SEI formation on lithium metal

10:40 to 11:20

Coffee Break
11:20 to 11:40

Jose H. Zagal (Chemistry and Biology, University of Santiago de Chile, Santiago, Chile), Laura Scarpetta-Pizo, Nayareth Vilches-Labbe, Ingrid Ponce, Ricardo Venegas

Reactivity Descriptors for the Reduction of O₂ of MN₄ Molecular Catalysts Compared to Those for Metallic Electrodes
S2 - Experimental, Theoretical and Computational Advances in Electrochemistry and Electrocatalysis

Room 2

Chaired by: Daniel Scherson 9:00-10:40 / Walter Orellana 11:20-11:40

09:00 to 09:40 Keynote

Walter Orellana (Departamento de Ciencias Fisicas, Universidad Andres Bello, Santiago, Chile)

Deactivation of graphene-supported Fe phthalocyanine in acidic and alkaline media: \textit{ab-initio} molecular dynamic simulations

09:40 to 10:00 Invited

Ingrid Ponce (Ciencias del Ambiente, Ingrid Ponce, Santiago, Chile), Alexis Aspee, Pablo Barrias, Francisco Mura, Karina Muñoz, Ruben Oñate, Laura Scarpetta, Ricardo Venegas, Nayareth Vilches, José H. Zagal

Electron Spin-dependent Electrocatalysis for the Oxygen Reduction Reaction in Bio-inspired Supramolecular FePc Device

10:00 to 10:20

Kosmos Liam Varvaris (Chemistry, Queen’s University, Kingston, Canada), Derek Esau, Timo Jacob, Gregory Jerkiewicz, Fabian Schuett

Controlled Atmosphere Flame Fusion Growth of Cobalt and Copper Single Crystal Electrodes for Electrochemistry and Electrocatalysis

10:20 to 10:40

Arkadiusz Grempka (Faculty of Chemistry, University of Warsaw, Poland), Paulina Bachurska, Damian Dziubak, Karolina Pulka-Ziach, Slawomir Sek

pH-sensitive oligoureas for functional molecular layers

10:40 to 11:20

Coffee Break

11:20 to 11:40 Invited

Federico Tasca (Quimica de los Materiales, USACH, Santiago, Chile), Cesar Cesar Zuñiga, Angelica Gatica, Walter Orellana, Soledad Ureta, Jose Zagal

Fe Phthalocyanines and Fe Penta-coordinated Phthalocyanines for the Oxygen Evolution and Oxygen Reduction Reactions
Poster Presentations

Monday & Tuesday

16:00 to 18:00 Poster session
S1 - Challenges in Molecular Electrochemistry and Surface Reactivity

s01-001
Soledad Bollo (Pharmacological Sciences, University of Chile, Santiago, Chile)
Synergic effect of metal phosphide nanoparticles (M = Ni and Co)/carbon fibers for glucose oxidation

s01-003
Juan Jose Diaz Gallegos (Nanotechnology, Instituto Tecnologico y de Estudios Superiores de Monterrey, Lopez Mateos, Mexico), Anaïd Cano, Brenda Garcia Farrera, Javier V. Lizama
Layered anodes via reactive magnetron sputtering deposition for electrochemical applications

s01-004
Sho Fujita (Chemistry, Queen’s University, Kingston, Canada), Stève Baranton, Christophe Coutanceau, Gregory Jerkiewicz
Structural Change of β-Nickel Hydroxide Nanosheets Upon Charge-Discharge Cycling

s01-005
Angélica Gatica (Department Materials Chemistry, University of Santiago de Chile, Santiago, Chile), Federico Tasca, Nicolás Troncoso, César Zúñiga Loyola

s01-006
Magdalena Hromadova (Electrochemistry at the Nanoscale, J. Heyrovsky Institute of Physical Chemistry of the CAS, Prague, Czech Republic), Jakub Šebera, Magdaléna Hromadová, Jiri Kaleta, Vilim Kolivoska, Stepánka Nováková Lachmanová, Lubomír Pospísil, Frantisek Vavrek
Odd-even effect in charge transport through molecules with multiple σ-bonded conductance pathways.
s01-007

**Geraldine Jara Reyes** *(Departamento de Química de los Materiales, Universidad de Santiago de Chile, Santiago, Chile)*, Nicolas Agurto, Carolina Candia, Elizabeth Imbarack, Camila Olguín, Jorge Pavez, Carlos Silva

*Design and study of a molecular electrode platform based on azo-aryl.*

s01-008

**Yoshiki Kato** *(Graduate School of Arts and Sciences, Iwate University, 4-3-5, Ueda, Morioka, Iwate, Japan)*, Tatsuya Takeguchi

*Improvement of Energy Efficiency and Suppression of ZAB Overvoltage*

s01-010

**Carlos Lema** *(Organic and Physical Chemistry, University of Chile, Santiago, Chile)*, Raul Moscoso

*Nanostructured Platform of Buckypaper Based on MWCNT and Nitroaromatics*

s01-011

**Jirí Ludvík** *(Molecular Electrochemistry and Catalysis, Ústav Fyzikální Chemie J. Heyrovského AVR, Praha 8, Czech Republic)*, Lucie Kolácná, Vojtech Kubícek

*Electrochemistry of Isomeric Cu-Azamacrocyclic Complexes*

s01-013

**Camila Olguín** *(Departamento de Química de los Materiales, Universidad de Santiago de Chile, Santiago, Chile)*, Nicolás Agurto, Carolina Candia, Elizabeth Imbarack, Geraldine Jara, Jorge Pavez, Carlos Silva

*Chemosensors and electrochemical catalysts based on electrodes modified with diazo calix[4]arenes derivatives.*

s01-014

**Berlane Santos** *(Chemistry Institute, University of Sao Paulo, Sao Paulo, Brazil)*, Lúcio Angnes, Fernanda Carli, Claudimir do Lago, Ivano Gutz

*Demonstrating the Formation of Hemiesters of Carbonic Acid on Modified Gold Electrode Surface*
s01-016

Liis Siinor (Institute of Chemistry, University of Tartu, Tartu, Estonia), Heigo Ers, Piret Pikma

The Adsorption Studies at Solid | Liquid Interface - Refining the Molecular-level Understanding

s01-017

Nicolás Troncoso (Department of Materials Chemistry, Universidad de Santiago de Chile, Santiago, Chile), Angélica Gatica, Federico Tasca, César Zúñiga Loyola

Oxygen Evolution Reaction and the Oxygen Reduction Reaction Catalyzed by Pentacoordinated Fe Phtalocyamine as Bifunctional Catalyst

s01-018

Kosmos Liam Varvaris (Chemistry, Queen’s University, Kingston, Canada), Derek Esau, Gregory Jerkiewicz

Investigation of the Hydrogen Electrode Reactions on Ni(hkl) Electrodes

s01-019

Mariusz Walkowiak (Centre of Electrochemical Energy Storage, Lukasiewicz Research Network, Poznan, Poland), Marcin Janczarek, Mateusz Jankowski, Teofil Jesionowski, Magdalena Przybyłczak

Catalytic Activity of Sub-Stoichiometric Metal Oxides Towards Sulfur Species in Lithium-Sulfur Cell
S2 - Experimental, Theoretical and Computational Advances in Electrochemistry and Electrocatalysis

s02-001

Rafael Armijo (Science, Engineering, and Technology Faculty, Universidad Mayor, Santiago, Chile), Fabiola Pineda

Potential Use of MXenes as a New Anti-Corrosive Nanomaterial in a Solar-Thermal Plant

s02-002

Félix Barría Garrido (Centro Integrativo de Biología y Química Aplicada (CIBQA), Universidad Bernardo O’Higgins, Santiago, Chile), Gabriel Abarca, Karina Muñoz Becerra, Cristian Valdebenito, Ricardo Venegas

Evaluation of the catalytic activity of as-synthesized multimetallic Fe-Co-Ni coordination polymer as electrocatalysts for the oxygen reduction reaction.

s02-003

Carolina P. Candia (Departamento de Química de los Materiales, Universidad de Santiago de Chile, Santiago, Chile), Nicolás Agurto, Sandra Fuentes, Elizabeth Imbarack, Geraldine Jara, Camila F. Olguín, Jorge Pavez, Carlos P. Silva, José H. Zagal

Covalent Modification of Glassy Carbon Surface via Radical-Induced Grafting from Electrochemical Oxidation of Imine Derivatives

s02-004

Fernando Díaz (Departamento de Electrocatálisis, Universidad de Santiago de Chile, Santiago, Chile), J. Francisco Silva

Functionalized Self-Assembled Monolayers with Gold Nanoparticles for the Detection of Steroid Hormones

s02-005

Fernando Díaz (Departamento de Electrocatálisis, Universidad de Santiago de Chile, Santiago, Chile)

Cu Nanostructures Molecularly Anchored to Substrates and Applied to the Electrochemical Reduction of CO₂
s02-006
**Batnyagt Garavdorj** *(Chemistry, Iwate University, Morioka, Japan), Md. Mijanur Rahman, Masato Saikawa, Tatsuya Takeguchi, Koichi Ui, Hidenobu Wakita, Takumi Yoshida*
*Improved Activity of High Surface Area Pt-Based Nanowires as Cathode Catalyst Under PEFC Operating Conditions*

s02-007
**Bohdan Josypcuk** *(Electrochemistry at the Nanoscale, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic), Sofiia Tvorynska*
*Electrochemical flow-through biosensing systems with spatially separated enzymatic and detecting parts*

s02-008
**Jan Langmaier** *(Electrochemistry at the Nanoscale, J. Heyrovsky Institute of Physical Chemistry, Prague 8, Czech Republic), Marta Choinska-Mlynarczyk, Vojtech Hrdlicka, Viliam Kolivoska, Tomas Navratil*
*Development of 3D Printed Electrodes for the Determination of Psychoactive Substances*

s02-012
**Matteo Miola** *(Product Technology - Engineering and Technology Institute, Groningen University, Groningen, Netherlands), Paolo P. Pescarmona*
*Controlling the efficiency of $\text{H}_2\text{O}$ to $\text{H}_2\text{O}_2$ electro oxidation via surface C-F anode species*

s02-013
**Matteo Miola** *(Product Technology - Engineering and Technology Institute, University of Groningen, Groningen, Netherlands), Jordi Creus, Paolo Pescarmona*
*Fructose Upgrading via Electrocatalytic Reduction to Sorbitol*

s02-014
**Juan Carlos Ignacio Reinoso Burrows** *(Facultad de Ingeniería, Universidad de Antofagasta, Antofagasta, Chile), Marcelo Cortes Carmona, Fabiola Pineda Parra*
*Mathematical modeling of the effect of technical solar salt impurities on the corrosion of steels used in thermosolar plants*
s02-015

David Saavedra *(Química, Pontificia Universidad Católica de Chile, Santiago, Chile)*, Lorena Barrientos, Karina Muñoz-Becerra, Ingrid Ponce, Ricardo Venegas

*Synthesis and characterization of bifunctional ORR/OER electrocatalysts based on Hofmann-type multi-metallic coordination polymers*

s02-017

Jana Skopalova *(Department of Analytical Chemistry, Faculty of Science, Palacký University Olomouc, Olomouc, Czech Republic)*, Petr Barták, Petr Cankar, Radek Jerga, Nikola Mikulová, Jakub Stýskala, Monika Zajacová Čechová

*Electrochemical Oxidation of Morphine in Acidic Aqueous Media - Identification of Reaction Products*

s02-018

Jose Solar-Encinas *(Departamento de Ciencias Químicas, Universidad Andres Bello, Santiago, Chile)*, Walter Orellana

*Graphene-supported B36-M clusters (M=Fe, Co, Ni) as single-atom catalyst for the oxygen reduction reaction: A DFT study*

s02-020

Mariusz Walkowiak *(Centre for Electrochemical Energy Storage, Łukasiewicz Research Network - Institute of Non-Ferrous Meta, Poznan, Poland)*, Justyna Kazmierczak-Razna, Piotr Nowicki, Monika Osinska-Broniarz, Magdalena Przybylczak, Mariusz Walkowiak

*Novel Engineered Carbons with Tailored Porosity for Lithium-Sulfur Batteries*

s02-021

Pablo Zerega *(Laboratorio Electroquímica 403, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile)*, Rodrigo Henríquez, Paula Salazar

*Solvothermal synthesis of p-Cu2ZnSnSe4 and its application as a photocatalyst in the degradation of Congo Red (CR)*
Index
Index

A
Abarca, Gabriel, s02-002
Agostiano, Angela, (Tue s01)15:00
Agurto, Nicolás, s01-007, s01-013, s02-003
Akutsu, Yasuhisa, (Wed s01)09:40
Albrecht, Tim, (Mon s01)11:20
Angnes, Lúcio, s01-014
Aoki, Daisuke, (Wed s01)09:40
Armijo, Rafael, s02-001
Aspee, Alexis, (Wed s02)09:40
Astudillo, Catalina, (Tue s02)10:20

B
Bachurska, Paulina, (Wed s02)10:20
Balbuena, Perla B., (Wed s01)10:20
Baranton, Stève, (Tue s01)10:20, s01-004
Barría Garrido, Felipe, s02-002
Barrias, Pablo, (Wed s02)09:40
Barrientos, Lorena, s02-015
Barros de Lima, Fábio Henrique, (Mon s02)10:20
Barták, Petr, s02-017
Blanchard, Pierre-Yves, (Mon s02)09:00
Bollo, Soledad, s01-001

C
Calvo, Ernesto Julio, (Mon s01)12:00
Campos Roldan, Carlos, (Mon s02)09:00
Candia, Carolina, s01-007, s01-013, s02-003
Cankar, Petr, s02-017
Cano, Anaïd, s01-003
Carli, Fernanda, s01-014
Cavaliere, Sara, (Mon s02)09:00
Cesar Zuñiga, Cesar, (Wed s02)11:20
Chattot, Raphaël, (Mon s02)09:00
Chillé, Donatella, (Mon s02)11:20
Chmielnicka, Anna, (Mon s01)10:00
Choinska-Mlynarczyk, Marta, (Mon s02)09:40, s02-008
Cordoba, Daniel, (Mon s01)12:00
Cordoba de Torresi, Susana, (Mon s02)11:40
Cortes, Marcelo, s02-014
Coutanceau, Christophe, (Tue s01)10:20, s01-004
Creus, Jordi, s02-013
Cuesta, Angel, (Wed s01)09:00
Curri, M. Lucia, (Tue s02)15:00

D
de Moura Torquato, Lilian, (Tue s02)15:00
Díaz Coello, Sergio, (Mon s01)10:20
Díaz, Fernando, s02-004, s02-005
Díaz Gallegos, Juan Jose, s01-003
do Lago, Claudimir, s01-014
Donzel, Nicolas, (Mon s02)09:00
Dupont, Marc, (Mon s02)09:00
Dziubak, Damian, (Wed s02)10:20

E
Ebera, Jakub, s01-006
Elbaz, Lior, (Tue s02)09:00
Ers, Heigo, (Mon s02)10:00, (Tue s01)10:00, s01-016
Esau, Derek, (Wed s02)10:00, s01-018
Escobar, Gonzalo, (Tue s02)11:40, (Tue s02)11:40

F
Fanizza, Elisabetta, (Tue s02)15:00
Farinola, Gianluca M., (Tue s02)15:00
Fino, Debora, (Mon s01)11:40
Florez, Elizabeth, (Mon s02)12:00
Fortuin, Adrian, (Mon s01)11:20, (Mon s01)11:20
Fuentes, Sandra, s02-003
Fujita, Sho, (Tue s01)10:20, s01-004

G
Garavdorj, Batnyagt, s02-006
Garcia Farrera, Brenda, s01-003
García, Gonzalo, (Mon s01)10:20
Gatica, Angélica, (Wed s02)11:20, s01-005, s01-017
Georgescu, Nicholas, (Tue s01)15:00
Godefroy, Louis, (Tue s01)11:20
Gomez Bustos, Daniel, (Tue s02)12:00
Gomez Marin, Ana Maria, (Mon s02)12:00
Gorton, Lo, (Mon s02)15:00
Grattieri, Matteo, (Tue s02)15:00
Grempta, Arkadiusz, (Wed s02)10:20
Gross, Axel, (Tue s02)11:20
Gutz, Ivano, s01-014
Guzmán, Hilmar, (Mon s01)11:40

H
Hamada, Kengo, (Wed s01)09:40, (Wed s01)10:00
Han, Qi, (Tue s01)15:00
Hapiot, Philippe, (Mon s01)09:40
Heer, Arvind Singh, (Tue s01)15:00
Henríquez, Rodrigo, s02-021
Hernández, Simelys, (Mon s01)11:40
Hirabayashi, Yasuo, (Wed s01)09:40
Hong, Hun-Gi, (Tue s01)11:40
Hrdlicka, Vojtech, (Mon s02)09:40, s02-008
Hromadová, Magdaléna, (Mon s01)09:00, s01-006

I
Imbarack, Elizabeth, s01-007, s01-013, s02-003

J
Jacob, Timo, (Wed s02)10:00
Janczarek, Marcin, s01-019
Jankowski, Mateusz, s01-019
Jara Reyes, Geraldine, s01-013, s01-007, s02-003
Jasielec, Jerzy, (Tue s01)11:20
Jerga, Radek, s02-017
Jerkiewicz, Gregory, (Tue s01)10:20, (Wed s02)10:00, s01-004, s01-018
Jesionowski, Teofil, s01-019
Jones, Deborah, (Mon s02)09:00
Josypcuk, Bohdan, s02-007

K
Kaleta, Jirí, s01-006
Kanoufi, Frédéric, (Tue s01)11:20
Karamad, Mohammadreza, (Tue s02)10:00
Kato, Yoshiki, s01-008
Kazmierczak-Razna, Justyna, s02-020
Kolácná, Lucie, s01-011
Kolivoska, Viliam, s01-006, s02-008
Koper, Marc, (Sun s01)17:30
Kostopoulos, Nikolaos, (Tue s01)11:20
Koverga, Andrii, (Mon s02)12:00
Kramer, Denis, (Mon s01)11:20
Krewer, Ulrike, (Wed s01)10:20
Krtíl, Petr, (Tue s02)10:20
Kuai, Dacheng, (Wed s01)10:20
Kubícek, Vojtech, s01-011
Kulesza, Paweł J., (Mon s01)10:00, (Tue s01)09:40

L
Labarile, Rossella, (Tue s02)15:00
Lainé, Philippe P, (Mon s01)09:00
Langmaier, Jan, (Mon s02)09:40, s02-008
Lanzaflame, Paola, (Mon s02)11:20
Lasala, Pierluigi, (Tue s02)15:00
Lecoeur, Frédéric, (Mon s02)09:00
Lee, Gyeong-Geon, (Tue s01)11:40
Lema, Carlos, s01-010
Lemineur, Jean-François, (Tue s01)11:20
Liska, Alan, (Mon s01)15:00
Liu, Cuibo, (Tue s01)12:00
Lizama, Javier V., s01-003
Ludvik, Jirí, (Mon s01)15:00, s01-011
Lust, Enn, (Mon s02)10:00

M
Mantelli, Harlan, (Tue s01)15:00
Marques de Oliveira, Paulo Filho, (Mon s02)10:20
Masa, Justus, (Tue s01)09:00
Maureira, Diego, (Mon s01)11:40
Mikulová, Nikola, s02-017
Minhova-Macounova, Katerina, (Tue s02)10:20
Miola, Matteo, (Mon s02)11:20, s02-012, s02-013
Moghaddam, Mahdi, (Tue s01)11:20
Moscoso, Raul, s01-010
Muñoz, Karina, (Tue s02)11:40, (Wed s02)09:40, s02-002, s02-015
Mura, Francisco, (Wed s02)09:40

N
Navratil, Tomas, (Mon s02)09:40, s02-008
Nayareth Vilches-Labbe, Laura Scarpetta-Pizo, (Wed s01)11:20
Nebel, Roman, (Tue s02)10:20
Noël, Jean-Marc, (Tue s01)11:20
Nováková Lachmanová, Stepánka, s01-006
Nowicki, Piotr, s02-020

O
Ochiai, Tsuyoshi, (Wed s01)09:40, (Wed s01)10:00
Olguín, Camila, s01-007, s01-013, s02-003
Oñate, Ruben, (Wed s02)09:40
Orellana, Walter, (Wed s02)09:00, (Wed s02)11:20, s02-018
Osinska-Broniarz, Monika, s02-020
Ottone, Carminna, (Mon s01)11:40

P
Papanikolaou, Gerogia, (Mon s02)11:20
Parnière, Alice, (Mon s02)09:00
Pavez, Jorge, s01-007, s01-013, s02-003
Peljo, Pekka, (Tue s01)11:20
Perez-Martinez, Laura, (Wed s01)09:00
Pescarmona, Paolo, (Mon s02)11:20, s02-012, s02-013
Pikma, Piret, (Mon s02)10:00, (Tue s01)10:00, s01-016
Pineda, Fabiola, s02-001, s02-014
Pinter, Balazs, (Tue s02)12:00
Ponce, Ingrid, (Wed s02)09:40, s02-015
Pospíšil, Lubomír, s01-006
Przybylczak, Magdalena, s01-019, s02-020
Pulka-Ziach, Karolina, (Wed s02)10:20

R
Rahman, Md. Mijanur, s02-006
Reinoso, Juan, s02-014
Ricardo Venegas, Ingrid Ponce, (Wed s01)11:20
Rodriguez, Hernan Bernardo, (Mon s01)12:00
Romano Luiz, Rafael, (Mon s02)10:20
Rozière, Jacques, (Mon s02)09:00
Rutkowska, Iwona, (Mon s01)10:00, (Tue s01)09:40
Rytelewska, Beata, (Tue s01)09:40

S
Saavedra, David, s02-015
Saikawa, Masato, s02-006
Salazar, Paula, s02-021
Santos, Berlane, s01-014
Sasaki, Moe, (Wed s01)10:00
Scarpetta, Laura, (Wed s02)09:40
Scherson, Daniel, (Tue s01)15:00
Schuett, Fabian, (Wed s02)10:00
Sek, Slawomir, (Wed s02)10:20
Siinor, Liis, (Mon s02)10:00, (Tue s01)10:00, s01-016
Silva, Carlos, s01-007, s01-013, s02-003
Silva, J. Francisco, s02-004
Silva Mantovi, Primaggio, (Mon s02)10:20
Skopalova, Jana, (Mon s02)09:40, s02-017
Solar-Encinas, Jose, s02-018
Stufano, Paolo, (Tue s02)15:00
Stýskala, Jakub, s02-017

T
Takeguchi, Tatsuya, s01-008, s02-006
Tasca, Federico, (Tue s02)09:40, (Wed s02)11:20, s01-005, s01-017
Ticianelli, Edson, (Mon s02)12:00
Tommasi, Tonia, (Mon s01)11:40
Toro, Alejandro, (Tue s02)11:40
Torresi, Roberto, (Mon s02)10:20
Troncoso, Nicolás, s01-005, s01-017
Trotta, Massimo, (Tue s02)15:00
Tvorynska, Sofiia, s02-007
Ui, Koichi, s02-006
Ureta, Soledad, (Wed s02)11:20

Valdebenito, Cristian, s02-002
Varvaris, Kosmos Liam, (Wed s02)10:00, s01-018
Vavrek, Frantisek, s01-006
Venegas, Ricardo, (Wed s02)09:40, s02-002, s02-015
Vilches, Nayareth, (Wed s02)09:40
Vona, Danilo, (Tue s02)15:00

Wagner, Janika, (Wed s01)10:20
Wakita, Hidenobu, s02-006
Walkowiak, Mariusz, s01-019, s02-020, s02-020
Wilson, Lorena, (Mon s01)11:40

Yahagi, Tsukaho, (Wed s01)10:00
Yoshida, Takumi, s02-006

Zagal, José H., (Tue s02)11:40, (Wed s01)11:20, (Wed s02)09:40, s02-003
Zajacová Cechnová, Monika, s02-017
Zerega, Pablo, s02-021
Zhen, Fangchen, (Mon s01)09:40
Zúñiga, César, (Tue s02)09:40, s01-005, s01-017
Conference Room Plan

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