

ISEECAP 2022

Bologna, 11-15 July 2022

DAMSLab - Piazzetta P. P. Pasolini, 5/b, 40122 - Bologna, Italy

It is our great pleasure to announce the 7th edition of

International Symposium on Enhanced Electrochemical Capacitors ISEECap 2022

The series of ISEECap Meetings have a great tradition and unique style of blending fundamental research with practical applications in the field of electrochemical capacitors and related devices.

This ISEECap 2022 Meeting will follow the tradition to line up a strong assembly of plenary, keynote and invited speakers to present and discuss such topics, in presence.

We hope that you will make this 7th edition of ISEECap a great success. Our goal is to gather in Bologna (Italy) from 11th to 15th July 2022, the most renowned international experts together with students and non-specialist engineers and researchers who share interest in electrochemical capacitors.

Conference Topics

Electrochemical Double Layer Capacitors, carbon electrodes and mechanisms

Pseudocapacitive materials and related mechanisms

Electrolytes and interfaces

Characterization techniques, in-situ and operando methods

Modelling of phenomena and systems

New concepts, new devices and new fabrication processes in supercapacitors

Microsupercapacitors and related components

Fast charging battery electrodes for asymmetric and hybrid devices

Devices and/or systems integration and applications

Sustainable materials, production processes and devices

Program overview

	8:30	9:00		12:20	14:20		18:00	20:30					
	REGISTRATION (8:15 – 18:00)												
MONDAY 11/07		T			T		P K I K I						
TUESDAY 12/07		P	K	I		I	O		K I O YO	P&R	AB Invited Dinner		
WEDNESDAY 13/07		P	K	I		K	I	O		I	O	YO	P&R
THURSDAY 14/07		P	K	O		I	O		K	O	YO		Gala Dinner
FRIDAY 15/07			O										

Tutorial	Plenary (40 min)	Keynote (25 min)	Invited Lecture (20 min)	Oral (15 min)	Young Oral (10 min)	Poster session & Refreshment	Break and social events
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Opening Lecture

Supercapacitors since the early nineties of the last century
 Prof. Marina Mastragostino, Accademia delle Scienze dell'Istituto di Bologna, Italy

Plenary Lectures

Prof. Thierry Brousse, Université de Nantes, France
 Prof. Elzbieta Frackowiak, Poznan University of Technology, Poland
 Prof. Yury Gogotsi, Drexel University, USA
 Prof. Patrice Simon, Université Paul Sabatier, France

Keynote Lectures

Prof. Andrea Balducci, Friedrich-Schiller-University Jena, Germany
 Prof. Wataru Sugimoto, Shinshu University, Japan
 Prof. Valeria Nicolosi, Trinity College Dublin, Ireland
 Prof. Mathieu Salanne, Sorbonne Université, France
 Prof. Clara Santato, Polytechnique Montreal, Canada
 Prof. Katsuhiko Naoi, University of Agriculture & Technology, Japan
 Prof. Volker Presser, Saarland University and INM - Leibniz Institute for New Materials, Germany
 Dr. Sebastian Pohlmann, Skeleton Technologies, Estonia

Invited Lectures

Prof. Krzysztof Fic, Poznan University of Technology, Poland
 Prof. John Miller, Case Western Reserve University, USA
 Prof. Jon Ajuria, Centre for Cooperative Research on Alternative Energies, Spain
 Prof. Andrea Lamberti, Politecnico di Torino, Italy
 Prof. Karl-Heinz Pettinger, University of Applied Sciences Landshut, Germany
 Prof. Celine Merlet, Université Paul Sabatier Toulouse, France
 Prof. Ncholu Manyala, University of Pretoria, South Africa
 Prof. Frédéric Favier, Institut Charles Gerhardt Montpellier, France
 Prof. Olivier Fontaine, Université de Montpellier, France
 Prof. George Zheng Chen, University of Nottingham Ningbo, China
 Prof. Francois Béguin, Poznan University of Technology, Poland
 Prof. Masashi Ishikawa, Kansai University, Japan
 Prof. Dominic Rochefort, Université de Montréal, Canada
 Prof. Volodymyr Khomenko, Kyiv National University of Technologies and Design, Kyiv
 Prof. Simon Fleischmann, Karlsruhe Institute of Technology (KIT)/ Helmholtz Institute, Ulm

MONDAY 11TH JULY

8:15 – 18:00 Registration

Tutorial session | Chair: M. Giorgetti, K. Fic, C. Arbizzani

08:30 – 09:00 Welcome coffee

09:00 – 09:10 **Introduction. Francesca Soavi** (University of Bologna, Italy)

09:10 – 10:00 **T1. John Miller** (JME Inc., USA) "EC fabrication, measurement and testing"

10:00 – 10:50 **T2. Masashi Ishikawa** (Kansai University, Department of Chemistry and Materials Engineering, Faculty of Chemistry, Materials and Bioengineering, Suita, Japan) "Redox-based electrolytes, hybrid systems"

10:50 – 11:10 Coffee break

11:10 – 11:50 **T3. Catia Arbizzani** (University of Bologna, Italy) "Capacitive and redox-based metrics"

11:50 – 12:30 **T4. Marco Giorgetti** (University of Bologna, Italy) "Operando vs. ex situ techniques"

Opening – Plenary session | Chair: F. Soavi, C. Arbizzani

14:00 – 14:20 **Introduction. Francesca Soavi** (University of Bologna, Italy)

14:20 – 15:00 **Opening Lecture. Marina Mastragostino** (Accademia delle Scienze dell'Istituto di Bologna, Bologna, Italy) "Supercapacitors since the early nineties of the last century"

15:00 – 15:40 **Plenary Lecture. Patrice Simon** (Université Toulouse III Paul Sabatier, Toulouse, France) "Electrochemistry under confinement in 3- and 2-Dimensional electrodes for capacitive energy storage"

15:40 – 16:05 **Keynote. Andrea Balducci** (Institute for Technical and Environmental Chemistry ITUC and Center for Energy and Environmental Chemistry CEEC Jena, Friedrich Schiller University Jena, Germany) "Novel strategies for the development and characterization of sustainable electrolytes for electrochemical capacitors"

16:05 – 16:25 **Invited Lecture. Volodymyr Khomenko** (Kyiv National University of Technologies and Design, Department for Electrochemical Power Engineering & Chemistry, Kyiv, Ukraine), D. Putlun "High Voltage Hybrid Supercapacitor with Ionic Liquid Electrolytes" (remote lecture)

16:25-17:00 Coffee break

Chair: P. Simon, A. Balducci

17:00 – 17:25 **Keynote. Mathieu Salanne** (Sorbonne Université, CNRS, Laboratoire PHENIX, Paris, France; Institut Universitaire de France, Paris, France), R. Berthin, C. Bacon, A. Serva "Simulating supercapacitors with complex electrolytes using polarizable molecular dynamics"

17:25 – 17:45 **Invited Lecture. Simon Fleischmann** (Helmholtz Institute Ulm HIU, Ulm, Germany; Karlsruhe Institute of Technology KIT, Karlsruhe, Germany) "Charge storage mechanisms in confined electrolytes"

17:45 – 18:05 **Invited Lecture. Krzysztof Fic** (Poznan University of Technology, Poznan, Poland; Kansai University, Department of Chemistry and Materials Engineering, Faculty of Chemistry, Materials and Bioengineering, Japan), A. Maćkowiak, P. Jeżowski, Y. Matsui, K. Soeda, M. Ishikawa, "Hybrid electrochemical capacitor with redox active electrolyte"

18:05-19:30 Welcome reception

TUESDAY 12TH JULY

Plenary Session | Chair: F. Béguin, M. Ishikawa

09:00 – 09:40 **Plenary Lecture. Thierry Brousse** (Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, Nantes, France; Réseau sur le Stockage Electrochimique de l'Energie (RS2E), CNRS, Amiens Cedex, France) "From supercapacitors to high power batteries: over 50 shades of gray"

09:40 – 10:05 **Keynote. Wataru Sugimoto** (Research Initiative for Supra-Materials, Faculty of Textile Science and Technology, Shinshu University, Japan) "Impact of Macro/microstructure of Nanosheet Architectures on Pseudocapacitive Charge Storage"

10:05 – 10:25 **Invited Lecture. George Z. Chen** (Department of Chemical and Environmental Engineering, and Advanced Materials Research Group, Faculty of Engineering, University of Nottingham, Nottingham, UK) "Box-like versus peak-shaped cyclic voltammograms for "pseudocapacitance"

10:25 – 11:00 Coffee break

Chair: W. Sugimoto, J. Ajuria

- 11:00 – 11:20 **Invited Lecture. François Béguin**, A. Chojnacka (Poznan University of Technology, ICTE, Poznan, Poland) "A smart way to enhance the energy output of electrochemical capacitors by internal hybridization of electrodes"
- 11:20 – 11:40 **Invited Lecture. Masashi Ishikawa**, T. Nishino (Department of Chemistry and Materials Engineering, Faculty of Chemistry, Materials and Bioengineering, Kansai University, Suita, Japan) "Impact of negative electrode utilization on cycle performance for LIC"
- 11:40 – 12:00 **Invited Lecture. Karl-Heinz Pettinger** (Technology Center Energy – University of Applied Sciences Landshut - Ruhstorf an der Rott, Germany), Christina Schubert, "Enabling redox flow batteries for grid stabilization by hybridization with supercapacitors"
- 12:00 – 12:15 **Olivier Crosnier** (Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, Nantes, France; RS2E, French Network on Electrochemical Energy Storage CNRS, Amiens, France), J.C. Espinosa-Angelès, E. Quarez, C. Douard and T. Brousse "Tungsten bronzes A_xWO_3 (A = Li, Na, and K) as electrode materials for high energy aqueous storage devices"

12:15 – 14:20 Lunch

Chair: T. Brousse, G. Z. Chen

- 14:20 – 14:45 **Keynote. Sebastian Pohlmann** (Skeleton Technologies, Tallinn, Estonia) "Creating Innovation from Research: How to improve performance characteristics in industrial Supercapacitor energy storage"
- 14:45 – 15:05 **Invited Lecture. John R. Miller** (JME, Inc., Ohio, USA), Sue Butler "Electrochemical Capacitor System Design Using Spec-Sheet Data"
- 15:05 – 15:25 **Invited Lecture. Jon Ajuria** (Alava Technology Park, Vitoria-Gasteiz, Basque Country, Spain), Maria Arnaiz, Maria Canal, Daniel Carriazo, Aitor Villaverde "From 1F lab-scale LIC to a roll-to-roll fabricated 100F prototype: the story of an adventurous journey"
- 15:25 – 15:40 **Massimo Melchiorre** (Dipartimento di Scienze Chimiche, Università degli Studi di Napoli Federico II, Napoli, Italy; CapTop S.r.l., Caivano, Italy), Khai Shin Teoh, Andrea Balducci, Martino Di Serio, Giancarlo Abbate, Francesco Ruffo "alfa-hydroxy acids ketals as bio-based solvents for Electrical Double Layer Capacitors: a structure-performance case study"
- 15:40 – 15:55 **Martina Mernini** (MARPOSS S.p.A, Bologna, Italy), J. Belcari, F. Stanghellini, C. Arbizzani, "Powerful dilatometric investigation of Li-ion capacitor materials"
- 15:55 – 16:10 **Mofredj Kenza**, Negre Léo, Zimmermann Marc, Boisset Aurélien (NAWATEchnologies, Rousset, France) "Industrial manufacturing of VACNT electrodes until high power Supercapacitors: VACNTs as material with numerous possibilities"

16:10 – 16:40 Coffee break

Young Scientists Session | Chair: J. Miller, O. Crosnier

- 16:40 – 16:50 **Maria Arnaiz** (Centre for Cooperative Research on Alternative Energies CIC energiGUNE, Basque Research and Technology Alliance BRTA, Alava Technology Park, Vitoria-Gasteiz, Spain), Jon Ajuria "Pre-lithiated $TiSb_2$ alloy-based lithium-ion capacitor exceeding 20000 cycles and standing for more than 1000 hours of float time"
- 16:50 – 17:00 **Mara Serrapede** (Istituto Italiano di Tecnologia, CSFT@Polito, Torino, Italy), J. Zenga, M. Fontana, P. Rivolo, C.F. Pirria, A. Lamberti "Mixed 1T-2H MoS_2 nanoflakes electrodes for Li-ion supercapacitors and electrocatalyst for HER"
- 17:00 – 17:10 **Marie-Eve Yvenat** (CEA, Grenoble, France), Benoit Chavillon, Eric Mayousse, Fabien Perdu, Philippe Azais "A non-aqueous potassium-ion hybrid supercapacitor for high power applications"
- 17:10 – 17:20 **Anita Cymann-Sachajdak** (Department of Energy Conversion and Storage, Faculty of Chemistry, Gdańsk University of Technology, Narutowicza, Gdańsk, Poland), Monika Wilamowska-Zawłocka, "Novel synthesis method of carbon decorated $Na_3V_2(PO_4)_3$ flower-structured hybrids to boost the electrochemical performance of sodium-ion cathodes"
- 17:20 – 17:30 **Rui S. Sampaio** (CQE, Institute of Molecular Sciences, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal), T. M. Silva, M. F. Montemor "Double pulse potentiostatic synthesis of MnO_2 for electrochemical capacitors"
- 17:30 – 17:40 **Etienne Le Calvez** (Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, Nantes, France; Réseau sur le Stockage Electrochimique de l'Energie (RS2E), CNRS, Amiens, France), Jeronimo Miranda, Yucheng Zhou, Eric Gautron, Nicolas Dupré, Laurent Pilon, Bruce Dunn, Olivier Crosnier, Thierry Brousse "Revisiting old structure for developing high-power battery: The case of $KTiNbO_5$ family."

- 17:40 – 17:50 **Jamie W. Gittins** (Department of Chemistry, University of Cambridge, Cambridge, U.K), Chloe J. Balhatchet, Alexander C. Forse, Yusuf Hamied “Enhancing the Performance of Layered Metal-Organic Framework Supercapacitors by Coordination Modulation”
- 17:50 – 18:00 Kamil Walczak, **Adam Moyseowicz** (Department of Process Engineering and Technology of Polymer and Carbon Materials, Faculty of Chemistry, Wrocław University of Science and Technology, Wrocław, Poland), Katarzyna Gajewska, Grażyna Gryglewicz, “Iron and manganese-based composites as pseudocapacitive electrodes for aqueous asymmetric capacitors”
- 18:00 – 19:30 **Poster Session & refreshments**
- 20:30 **International Advisory Board Dinner**
(on invitation at Trattoria Osteria Buca Manzoni, Via Manzoni, 6g, Bologna)

WEDNESDAY 13TH JULY

Plenary Session | Chair: D. Rochefort, O. Fontaine

- 09:00 – 09:40 **Plenary Lecture. Elzbieta Frackowiak** (Poznan University of Technology, Institute of Chemistry and Technical Electrochemistry - Poznan, Poland), “Why EC electrolytes should not be ignored?”
- 09:40 – 10:05 **Keynote. Volker Presser** (INM - Leibniz Institute for New Materials, Saarland University, Saarene - Saarland Center for Energy Materials and Sustainability - Saarbrücken, Germany), Y. Zhang, G. Feng, “Permselectivity of Sub-Nanometer Carbon Pores: From Prediction to Experimental Verification”
- 10:05 – 10:25 **Invited Lecture. Scott W. Donne** (Discipline of Chemistry, University of Newcastle - Callaghan NSW, Australia), Sofia B. Davey, Amanda P. Cameron, Kenneth G. Latham, Caitlin Callahan, Nicholas S. Wilson, “Evaluation of the Electrified Interface in Electrochemical Capacitors”
- 10:25 – 11:00 **Coffee break**

Chair: E. Frackowiak, S. Donne

- 11:00 – 11:25 **Keynote. Clara Santato** (Dept of Engineering Physics, Polytechnique Montreal - Montreal, QC Canada), Abdelaziz Gouda, Molood Hoseinizadeh, Francesca Soavi, “Greener electrochemical energy storage based on biosourced materials”
- 11:25 – 11:45 **Invited Lecture. Céline Merlet** (CIRIMAT, Université de Toulouse, CNRS, Université Toulouse - France), Anouar Belhboub, El Hassane Lahrar, Anagha Sasikumar, Patrice Simon, “Multi-scale models for a better understanding and performance prediction of the carbon electrode / electrolyte interface in supercapacitors”
- 11:45 – 12:05 **Invited Lecture. Olivier Fontaine** (Molecular Electrochemistry for Energy laboratory, VISTEC - Rayong, Thailand), Yachao Zhu, Siraprapha, Thierry Brousse, Frederic Favier, “An inclusive mathematical model for Faradaic Electrode Materials in electrochemical energy storage”
- 12:05 – 12:20 **Minghao Yu** (Faculty of Chemistry and Food Chemistry & Center for Advancing Electronics Dresden (cfaed), Technische Universität Dresden - Dresden, Germany), Xinliang Feng, “Controlling charge carrier ions for high-kinetics battery chemistries”
- 12:20 – 14:20 **Lunch**

Chair: V. Presser, C. Merlet

- 14:20 – 14:40 **Invited Lecture. Dominic Rochefort** (Département de chimie, Université de Montréal - Montreal, Canada), Hassina Nadour, Jensheer Shamsudeen Seenath, Yanyu Wang, David Pech, “Ionic liquids in Electrochemical Capacitors: From Macro to Micro”
- 14:40 – 15:00 **Invited Lecture. Ouassim Ghodbane** (National Institute of Research and Physico-chemical Analysis (INRAP), Biotechpole Sidi Thabet - Tunisia), Moomen MARZOUKI, Ramzi ZARROUGUI, “Application of cobalt oxide electrodes in the presence of aprotic ionic liquids for symmetric supercapacitors”
- 15:00 – 15:20 **Invited Lecture. Frédéric Favier** (ICGM UMR5253 CNRS-Univ. Montpellier, Réseau sur le Stockage Electrochimique de l'énergie (RS2E), FR CNRS - France), Yachao Zhu, Mathieu Deschanel, Olivier Fontaine, Patrice Simon, Steven Le Vot, “Redox-active organic molecules on carbon”
- 15:20 – 15:35 **Timo Stettner** (Institute for Technical and Environmental Chemistry (ITUC) and Center for Energy and Environmental Chemistry (CEEC), Friedrich Schiller University Jena - Jena, Germany), Leonard Dick, Barbara Kirchner, Andrea Balducci, “Hydrophobic protic ionic liquids as electrolyte for electrical double layer capacitors”

15:35 – 15:50 **Roman Mysyk** (Centre for Cooperative Research on Alternative Energies (CIC energiGUNE, Basque Research and Technology Alliance (BRTA), Alava Technology Park - Vitoria-Gasteiz, Spain), Gelines Moreno-Fernández, Noel Díez, Daniel Carriazo, Juan Miguel, López del Amo, “Ion transport from water-in-salt electrolyte through porosity of hierarchical porous carbons”

15:50 – 16:05 **Jean Le Bideau** (Nantes Université, CNRS, Institut des Matériaux Jean Rouxel - Nantes, France), “Ionogels: past, present and future”

16:05 – 16:30 **Coffee break**

Young Scientists Session | Chair: C. Santato, O. Ghodbane

16:30 – 16:40 **Siqi Liu** (Friedrich-Schiller-University Jena, Institute of Technical Chemistry and Environmental Chemistry and Center for Energy and Environmental Chemistry Jena (CEEC Jena) - Jena, Germany), Ronald Klukas, Thomas Porada, Kristina Furda, Alba Martín Fernández, Andrea Balducci, “Potassium formate-based electrolytes for high performance aqueous electrochemical capacitors”

16:40 – 16:50 **Lukas Köps** (Institute for Technical Chemistry and Environmental Chemistry and Center for Energy and Environmental Chemistry Jena (CEEC Jena) - Jena, Germany), Fabian Kreth, Annika Bothe, Andrea Balducci, “Novel pyrrolidinium based salts and sulfone-based solvents for high voltage electrical double layer capacitors”

16:50 – 17:00 **Zallouz Sirine** (Université Haute Alsace, CNRS, Institut de Sciences des Matériaux de Mulhouse (IS2M) - Mulhouse, France, Université de Strasbourg - Strasbourg, France), Jean-Marc Le Meins, Camélia Matei Ghimbeu, “Enhanced energy density and safety of carbon-carbon supercapacitor by development of a green hydrogel electrolyte”

17:00 – 17:10 **Pietro Zaccagnini** (Dipartimento di scienze applicate e tecnologia – Politecnico di Torino - Torino, Italy, Centre for Sustainable and Future Technologies – Istituto Italiano di Tecnologia - Torino, Italy), Mara Serrapede, Marco Fontana, Paola Rivolo, Stefano Bianco, Stefano Carminati, Massimo Zampato, Candido Fabrizio Pirri, Andrea Lamberti, “Electric Double Layer and Pseudocapacitive Ionic Liquid-based Supercapacitors for Harsh Environment applications”

17:10 – 17:20 **Siraprapha Deebansok** (Molecular Electrochemistry for Energy laboratory, VISTEC - Rayong, Thailand), Konthee Boonmeeprakob, Khwanrudee Chitbankluai, Olivier Fontaine, “Artificial intelligence for pseudocapacitive tendency prediction of faradaic electrode material electrochemical behavior”

17:20 – 17:30 **Andrés Parejo-Tovar** (Institute of Chemistry and Technical Electrochemistry - Poznan, Poland), François Béguin, Paula Ratajczak, “Comprehensive Analysis of Electrodes Performance in Carbon-based Hybrid Capacitors by Cyclic Voltammetry”

17:30 – 17:40 **Delvina Tarimo** (Department of Physics, Institute of Applied Materials, SARChI Chair in Carbon Technology and Materials, University of Pretoria, South Africa), Kabir O. Oyedotun, Ndeye Fatou Sylla, Abdulmajid A. Mirghni, Ndeye Maty Ndiaye, Ncholu Manyala, “High specific energy obtained after long floating time from high surface area activated carbon for supercapacitor application”

17:40 – 17:50 **Elisabetta Petri** (Department of Chemistry “Giacomo Ciamician”, Alma Mater Studiorum – Università di Bologna, Bologna, Italy), Federico Poli, Alessandro Brilloni, Andrea Fasolini, Francesco Basile, Francesca Soavi, “Challenge for upscaling activated carbon production for supercapacitor applications from real lignin waste”

18:00 **ISEECap group picture**

18:00 – 19:30 **Poster Session & refreshments**

THURSDAY 14TH JULY

Plenary Session | Chair: A. Lamberti, K. Naoi

09:00 – 09:40 **Plenary Lecture. Yury Gogotsi** (A.J. Drexel Nanomaterials Institute and Department of Materials Science and Engineering, Drexel University - Philadelphia, USA), Armin Vahid Mohammadi, “MXenes in Next Generation Energy Storage Devices”

09:40 – 10:05 **Keynote. Valeria Nicolosi** (Trinity College Dublin, School of Chemistry, CRANN Institute, AMBER and I-Form Centres - Dublin, Ireland), “Processing and applications of MXenes inks”

10:05 – 10:20 **Julien Dangbegnon** (Center for Sustainable Future Technologies @POLITO, Istituto Italiano di Tecnologia - Turin, Italy), Nadia Gardino, Mara Serrapede, Pietro Zaccarini, Francesco Seller, Matteo Cocuzza, Matteo Angelozzi, Thierry Ouisse, Jesus Gonzalez-Julian, Andrea Lamberti, Candido Pirri, “High performance novel asymmetric MXene@CNT//N-doped CNT flexible hybrid device with large working voltage for energy storage”

10:20 – 11:00 **Coffee break**

Chair: V. Nicolosi, B. Ballarin

- 11:00 – 11:20 **Invited Lecture. Ncholu Manyala** (Department of Physics, Institute of Applied Materials, SARChI Chair in Carbon Technology and Materials, University of Pretoria - Pretoria, South Africa), N. F. Sylla, S. Sarr, N. M. Ndiaye, B. D. Ngom, "Enhanced electrochemical performance of activated carbons derived from peanut shell waste"
- 11:20 – 11:40 **Invited Lecture. Andrea Lamberti** (Department of Applied Science and Technology, Polytechnic of Turin, Italian Institute of Technology, Center for sustainable future technologies - Turin, Italy), Pietro Zaccagnini, Marco Fontana, Mara Serrapede, Sergio Ferrero, Candido F. Pirri, "Laser-induced graphene: a disruptive material for micro-supercapacitors"
- 11:40 – 11:55 **Filipe Braga** (Stephenson Institute for Renewable Energy, University of Liverpool - Liverpool, UK), Gabriel Casano, Marco Caffio, Laurence J. Hardwick, "Electrodeposition of FeOOH and MnO₂ on flexible carbon substrates for asymmetric aqueous capacitor applications"
- 11:55 – 12:10 **Botayna Bounor** (LAAS, Université de Toulouse, CNRS - Toulouse, France), Jensheer Shamsudeen Seenath, David Bourrier, David Pech, "3D microdevice from high-capacitance microsupercapacitor electrodes"
- 12:10 – 12:25 **Carola Esposito Corcione** (Università del Salento - Lecce, Italy, CNR-NANOTEC-Istituto di Nanotecnologia, Polo di Nanotecnologia, c/o Campus Ecotekne - Lecce, Italy), Eleonora Ferraris Giuseppe Greco, Miriam Seiti, Antonella Giuri, Olivier Degryse, Aurora Rizzo, Sonia Bagheri, Claudio Mele, "Fabrication and characterization of GO-PEDOT:PSS nanocomposites for supercapacitors"

12:25 – 14:20 **Lunch**

Chair: Y. Gogotsi, N. Manyala

- 14:20 – 14:45 **Keynote. Katsuhiko Naoi** (Department of Applied Chemistry, Tokyo University of Agriculture & Technology, Naka-cho, Tokyo, Japan), Wako Naoi, "Microcurrents for Macroefficiency Effective Harvesting of Solar Energy by TNG Supercapacitors"
- 14:45 – 15:00 **Daniel Carriazo** (Centre for Cooperative Research on Alternative Energies CIC energiGUNE, Basque Research and Technology Alliance BRTA, Alava Technology Park, Vitoria-Gasteiz; IKERBASQUE, Basque Foundation for Science, Bilbao, Spain), Miguel Granados-Moreno, Gelines Moreno-Fernández, Rosalía Cid, Juan Luis Gómez-Urbano "Microstructured nitrogen-doped graphene-Sn composites as a negative electrode for high performance lithium-ion hybrid supercapacitors"
- 15:00 – 15:15 **Joana S. Teixeira** (REQUIMTE/LAQV, Department of Chemistry and Biochemistry, Faculty of Sciences, University of Porto (FCUP), IFIMUP, Institute of Physics for Advanced Materials, Nanotechnology and Photonics, Department of Physics and Astronomy, FCUP - Porto, Portugal), André M. Pereira, Clara Pereira, "Hybrid Glow-in-the-Dark Energy Storage Textile Device: Phosphorescent ZnS:Cu-based Redox-active Electrolyte for Fashion/Safety Applications"
- 15:15 – 15:30 **Angelina Sarapulova** (Institute for Applied Materials (IAM), Karlsruhe Institute of Technology (KIT) - Eggenstein-Leopoldshafen, Germany), Mona M. Ismail, Ahmed G. El-Deen, Sonia Dsoke, "A Hybrid supercapacitor based on Mn-MOF and Activated Carbon in water- and organic-based electrolytes"
- 15:30 – 15:45 **Alexander Forse** (University of Cambridge - Cambridge, U.K.), Grace Mapstone, Trevor Binford, Israel Temprano, Michael de Volder, "Understanding Electrochemical CO₂ Capture by Supercapacitors"

15:45 – 16:30 **Coffee break**

Young Scientists Session | Chair: S. Pohlmann, S. Fleischmann

- 16:30 – 16:40 **Przemysław Galek** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology), Paulina Bujewska, Krzysztof Fic, "Impact of OH⁻ and H⁺ ions concentration on electrical double-layer formation and electrode expansion in porous carbon materials"
- 16:40 – 16:50 **Mariam Maisuradze** (Department of Industrial Chemistry "Toso Montanari", University of Bologna - Bologna Italy), Min Li, Mattia Gaboardi, Jasper Rikkert Plaisier, Marco Giorgetti, "Operando PXRD Study of Ni-doped Manganese Hexacyanoferrate Cathode Material in Aqueous Zn-ion Battery System"
- 16:50 – 17:00 **Paulina Bujewska** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology - Poznan, Poland), Krzysztof Fic, "Intriguing Role of the Cation in the Electrical Double-Layer Formation at Nanoporous Carbons Monitored by Electrochemical Dilatometry"
- 17:00 – 17:10 **Jakub Menzel** (Poznan University of Technology, Institute of Chemistry and Technical Electrochemistry - Poznan, Poland), Adam Slesinski, Przemyslaw Galek, Paulina Bujewska, Elżbieta Frąckowiak, Krzysztof Fic, "Analysis of carbon electrode dilatometric strain determined by Scanning Electrochemical Microscopy and internal pressure measurements"

- 17:10 – 17:20 **Adam Slesinski** (Poznan University of Technology, Institute of Chemistry and Technical Electrochemistry - Poznan, Poland), Sylwia Sroka, Jakub Menzel, Elzbieta Frackowiak, Krzysztof Fic, "Operando monitoring of local pH value changes at carbon electrode surface in aqueous electrochemical capacitors"
- 17:20 – 17:30 **Nicolas Demarthe** (Nantes university, CNRS, Institut des Matériaux Jean Rouxel, IMN - Nantes, France), Thibaud Guillemin, Maxime Bayle, Bernard Humbert, Dario Arrua, Drew Evans, Thierry Brousse, Jean Le Bideau, "Divalent metal solid-state electrolyte for hybrid capacitors: study of the coordination anion-to-Mg²⁺ via Raman spectroscopy"
- 17:30 – 17:40 **Annika Bothe** (Institute for Technical and Environmental Chemistry (ITUC) and Center for Energy and Environmental Chemistry (CEEC), Friedrich Schiller University Jena - Jena, Germany), Lars Henning Hess, Andrea Balducci, "Development and Use of an in-situ simultaneous thermal analysis (STA) cell"
- 20:30 **Gala Dinner** (open to all registered participants at Cantina Bentivoglio, Via Mascarella, 4b, Bologna)

FRIDAY 15TH JULY

9:30 – 10:00 Welcome coffee

Plenary Session | Chair: F. Favier, K. Fic

- 10:00 – 10:15 **Andres M.R. Ramirez** (Grupo de electroquímica de nanomateriales (GENM), Centro de Nanotecnología Aplicada, Facultad de Ciencias, Universidad Mayor - Santiago, Chile), Lorca-Ponce J., Vergara A., "Electrosynthesis of nanostructured polyindole adorned with MnO₂ nanorod and its evaluation in properties as a supercapacitor"
- 10:15 – 10:30 **Michael R.C. Hunt** (Centre for Materials Physics, Durham University - Durham, United Kingdom), R.E. Williams, S. Sukumaran, Q. Abbas, "Few-layer graphene as an electrode, electrode additive and an interfacial layer in aqueous supercapacitors"
- 10:30 – 10:45 **Nicolò Pianta** (Department of Materials Science, University of Milano Bicocca - Milano, Italy), Federico Scarpioni, Fabio La Mantia, Riccardo Ruffo, "Dynamic Electrochemical Impedance Spectroscopy as a valid tool to monitor EDLCs operando"
- 10:45 – 11:00 **Francesco Lufitano** (CNR-ITAE, Istituto di Tecnologie Avanzate per L'Energia "Nicola Giordano" - Messina, Italy), Minju Thomas, Svetlana Veleva, Boriana Karmanova, Antonino Brigandì, Ana Arenillas, Antonia Stoyanova, "Hybrid Supercapacitors based on Manganese oxide and Activated carbon Electrodes Using Sodium Exchange Aquivion Electrolyte Membrane"
- 11:00 – 11:15 **Lyubomir Soserov** (Institute of Electrochemistry and Energy Systems – Bulgarian Academy of Sciences - Sofia, Bulgaria), B. Karamanova, S. Veleva, A. Arenillas, F. Lufitano, A. Stoyanova, "Optimizing the pair carbon xerogels-electrolyte for high performance supercapacitors"
- 11:15 – 11:30 **Federico Poli** (Department of Chemistry "Giacomo Ciamician", Alma Mater Studiorum Università di Bologna - Bologna, Italy, Center for the Environment, Energy, and Sea - Interdepartmental Centre for Industrial Research in Renewable Resources, Environment, Sea and Energy (CIRI-FRAME) - Marina di Ravenna, Italy), Carlo Santoro, Francesca Soavi, "Green supercapacitive systems"
- 11:30 **Closing remarks. Francesca Soavi** (University of Bologna, Italy)

POSTER PRESENTATIONS

Posters will be displayed for the entire duration of the conference. Poster presenters are invited to be on hand with their poster during the poster sessions.

Electrolytes and membranes

- P01 **Adam Mackowiak** (University of Technology, Poznan, Poland), Paweł Jeżowski, Yukiko Matsui, Kazunari Soeda, Masashi Ishikawa, Krzysztof Fic, "Redox-active electrolytes for pre-lithiation of graphite electrode in lithium-ion capacitors"
- P02 **Amelia Klimek** (Poznan University of Technology, Institute of Chemistry and Technical Electrochemistry, Poznan, Poland), Justyna Piwek, Elzbieta Frackowiak "Improving the performance of electrochemical capacitors by addition of iodide"
- P03 **Minju Thomas** (CNR-ITAE, Istituto di Tecnologie Avanzate per l'Energia "Nicola Giordano" S. Lucia, Messina, Italy; Department of Chemistry and Chemical Technology, University of Calabria, Rende, Italy), , Catia Cannilla, Antonino Brigandì, Francesco Lufitano, Isabella Nicotera, "Mesoporous Carbon Electrodes for Supercapacitor with Sodium ion Exchange Aquivion as Electrolyte membrane"
- P04 **Svetlana Veleva** (Institute of Electrochemistry and Energy Systems, Bulgarian Academy of Sciences, Sofia, Bulgaria), B.Karamanova, A. Stoyanova, A. Arenillas, Natalia Rey, "Effect of polymer-based electrolyte on electrochemical properties of supercapacitor systems"

- P05 **Ilona Acznik** (Łukasiewicz Research Network - Institute of Non-Ferrous Metals Division in Poznan, Poznan Poland), Paulina Bujewska, Krzysztof Fic, Katarzyna Lota, "Influence of the phenomenon of self-organization of liquid crystals on the performance of an electrochemical capacitor"
- P06 **Paulina Bujewska** (Łukasiewicz Research Network - Institute of Non-Ferrous Metals Division in Poznan, Poznan Poland), Krzysztof Fic, Katarzyna Lota, Ilona Acznik, "Effect of Pluronic triblock copolymer as the electrolyte additive on the electrochemical capacitors performance"
- P07 **Alessandro Brilloni** (Department of Chemistry "Giacomo Ciamician", Alma Mater Studiorum – Università di Bologna, Via Selmi 2, 40126, Bologna, Italy), Elisabetta Petri, Federico Poli, Francesca Soavi, "Application of Water in Salt electrolytes for low environmental impact supercapacitors"
- P08 **Metin Orbay** (Friedrich-Schiller-University Jena, Institute of Technical Chemistry and Environmental Chemistry and Center for Energy and Environmental Chemistry, Jena, Germany), Andrea Balducci, "Glyoxylic acetals-based electrolytes for high power applications"
- P09 **Theo Shin Theo** (Friedrich-Schiller-University Jena, Institute for Technical Chemistry and Environmental Chemistry and Centre for Energy and Environmental Chemistry Jena (CEEC Jena) Philosophenweg, Jena, Germany) Massimo Melchiorre, Francesco Ruffo, Andrea Balducci, "Sustainable solvents for electrical double layer capacitors"
- P10 **Arianna Massaro** (Institute for Technical Chemistry and Environmental Chemistry, Friedrich Schiller University, Jena, Germany; Department of Chemical Sciences, University of Naples "Federico II", Comp. Univ. Monte Sant'Angelo, Naples, Italy; National Reference Center for Electrochemical Energy Storage (GISEL) – INSTM, Firenze, Italy), Timo Stettner, Claudio Gerbaldi, Ana B. Muñoz-García, Michele Pavone, Andrea Balducci, "Physico-chemical investigation on the use of protic ionic liquids in supercapacitors: a joint experimental-theoretical study"

Hybrid and pseudo supercapacitors

- P11 **Rebecka Gläßner** (Institute for Technical and Environmental Chemistry (ITUC) and Center for Energy and Environmental Chemistry (CEEC), Friedrich Schiller University Jena, Philosophenweg 7a, 07743 Jena, Germany), Patrick Gerlach, Gauthier Studer, Birgit Esser, Andrea Balducci, "High Power Hybrid System based on poly(3-vinyl-N-methylphenothiazine)"
- P12 **Luisa Baudino** (DISAT Dipartimento di Scienza Applicata e Tecnologia, Politecnico di Torino, Italy), Pietro Zaccagnini, Nadia Garino, Mara Serrapede, Marco Laurenti, Alessandro Pedico, Andrea Lamberti, C. Fabrizio Pirri, "TiO₂ nanotubes-based electrodes for hybrid lithium-ion capacitor and for desalination purposes"
- P13 **Mitra Bagheri** (Department of Physics, Vali-e-Asr University of Rafsanjan, Rafsanjan, Iran), P. Zaccagnini, M. Serrapede, A. Lamberti, M. Molaei, M. Rohani, Moghadam, M. Karimipour, "Highly-efficient hybrid nanostructure of rGO-TiO₂ as cathode electrode in sodium based aqueous electrolyte"
- P14 **Sirine Zallouz** (Université Haute Alsace, CNRS, Institut de Sciences des Matériaux de Mulhouse IS2M), Mulhouse, Université de Strasbourg, Strasbourg, France), Bénédicte Réty, Loic Vidal, Jean-Marc Le Meins, Camélia Matei Ghimbeu, "Mesoporous carbon with high load of Co₃O₄ nanoparticles and their performance in supercapacitors"
- P15 **Justyna Piwek** (Nanoelectronic Devices Laboratory NANOLAB, École Polytechnique Fédérale de Lausanne EPFL, Lausanne, Switzerland), Victoria Manzi-Orezzoli, Hung-Wei Li, Adrian M. Ionescu, Clara F. Moldovan, "Redox-enhanced Vertically Aligned Carbon Nanotubes as a Novel Electrode Material for Microcapacitors"
- P16 **Daria Roda** (Department of Chemistry and Technology of Functional Materials, Faculty of Chemistry, Gdańsk University of Technology, Gdańsk, Poland) Z. Zarach, M. Łapiński, K. Trzciński, M. Szkoda, "Electrochemical properties of TiO₂NT/MoS₂/PANI composite electrode for supercapacitors"
- P17 **Zuzanna Zarach** (Department of Chemistry and Technology of Functional Materials, Faculty of Chemistry, Gdańsk University of Technology, Gdańsk, Poland), M. Szkoda, K. Trzciński, M. Łapiński, G. Trykowski, A.P. Nowak, "The phenomenon of the increasing capacitance induced by 1T/2H-MoS₂ surface modification with Pt particles and its influence on composition and energy storage mechanism"
- P18 **Camille Douard** (Université de Nantes, CNRS, Institut des Matériaux Jean Rouxel, IMN, Nantes, Réseau sur le Stockage Electrochimique de l'Energie RS2E, CNRS Amiens, France), Laurence Athouël, David Brown, Olivier Crosnier, Guillaume Rebmann, Oliver Schilling, Thierry Brousse, "Electrode Design for MnO₂-Based Aqueous Electrochemical Capacitors: Influence of Porosity and Mass Loading"
- P19 **Jacopo Manidi** (Politecnico di Milano, Dipartimento di Chimica, Materiali Ingegneria Chimica "Giulio Natta", Milan, Italy), Maksim Bahdanchyk, Antonello Vicenzo, "Influence of Crystallinity on the Electrochemical Behavior of Sodium Birnessite Electrodes"

- P20 **Maciej Tobis** (Poznan University of Technology, Poznan, Poland), Elżbieta Frąckowiak, "Redox response at electrode/electrolyte interface in carbon/TMDs composites"
- P21 **Jakub Menzel** (Poznan University of Technology, Institute of Chemistry and Technical Electrochemistry, Poznan, Poland), Sylwia Sroka, "Ageing of carbon electrodes in Li-ion hybrid capacitors"
- P22 **Jon Rodriguez-Romero** (Departamento de Química Orgánica e Inorgánica, Facultad de Ciencia y Tecnología, Universidad del País Vasco UPV/EHU, Leioa, Spain), Nekane Nieto, Veronica Palomares, Idoia Ruiz de Larramendi, Eider Goikolea, "Exploring an alternative cell configuration for Sodium-ion capacitors using $\text{Na}_3(\text{VO})_2(\text{PO}_4)_2\text{F}$ and biomass derived carbon"
- P23 **Adam Moysowicz** (Department of Process Engineering and Technology of Polymer and Carbon Materials, Faculty of Chemistry, Wrocław University of Science and Technology, Wrocław, Poland), Karolina Kordek-Khalil, Agata Moysowicz, "Effect of the synthesis method on the physical, chemical, and electrochemical properties of the flexible iron nitride-carbon cloth electrode"
- P24 **Keisuke Matsumura** (Department of Applied Chemistry, Tokyo Univ. of Agri. & Tech., Tokyo, Japan), Naoki Hashizume, Etsuro Iwama, Wako Naoi, Patrick Rozier, Patrice Simon, Katsuhiko Naoi "Spray dry synthesis of capsule-like $\gamma\text{-Li}_{3.2}\text{V}_{0.8}\text{Si}_{0.2}\text{O}_4/\text{C}$ nanocomposite for pseudocapacitive anode material"
- P25 **Yuta Harada** (Department of Applied Chemistry, Institute of Global Innovation Research Organization, Tokyo Univ. of Agri. & Tech., Tokyo, Japan), Masahiro Fukuyama, Naohisa Okita, Etsuro Iwama, Wako Naoi, Katsuhiko Naoi "Ultralong-Lifespan $\text{Li}_4\text{Ti}_5\text{O}_{12}/\text{Ti}$ doped $\text{Li}_3\text{V}_2(\text{PO}_4)_3$ Full Cell by Significant Suppression of Vanadium Dissolution from LVP electrode"
- P26 Kang Ho Shin, **Min Jun Hwang**, Puritut Nakhanevej, Ho Seok Park, (School of Chemical Engineering, Sungkyunkwan University, Suwon, South Korea), "Structural/Chemical Modification of Sodium Vanadium Phosphate for Ultrahigh Rate Sodium Ion Storage"
- P27 **Taehun Kang** (School of Chemical Engineering, Sungkyunkwan University, Suwon, South Korea), Yury Gogotsi, Ho Seok Park, "Dual Ion Hybrid Energy Storage based on Lanthanum Manganese Oxide Composites and MXenes"
- P28 **Dong Hyun Min**, Min Kyu Jung, Ho Seok Park (School of Chemical Engineering, Sungkyunkwan University, Suwon, South Korea) "Liquid-phase exfoliated hexagonal boron nitride/reduced oxide graphene hybrid electrodes for pseudocapacitive energy storage"

Carbon-based supercapacitors

- P29 **Norman Baltes** (Fraunhofer Institute for chemical technology ICT, Pfinztal, Germany), Johannes Heumann, Jens Tübke, "Vinyl Acetate/Ethylene as a prospective way out for fluorine free binders in supercapacitors"
- P30 **Johannes Heumann** (Fraunhofer Institute for chemical technology ICT, Pfinztal, Germany), Norman Baltes, Jens Tübke, "Investigation of commercial supercapacitor materials for industrial application"
- P31 **Sandesh Magar** (Institute for Technical Chemistry and Environmental Chemistry and Center for Energy and Environmental Chemistry, Jena, Germany), Andrea Balducci, "Brewers' Spent Grains derived activated carbons for high performance electrochemical capacitor"
- P32 **Michael Hunt** (Centre for Materials Physics, Durham University, United Kingdom), K.E. Ninham, "Steam-activated oat hulls: a sustainable material for supercapacitor electrodes"
- P33 **Alessandro Pedico** (Dipartimento di Scienza Applicata e Tecnologia DISAT, Politecnico di Torino, Italy), Nadia Garino, Sergio Bocchini, Andrea Lamberti, "Performance study on the addition of novel functionalized graphene oxide in activated carbon-based electrodes for capacitive deionization"
- P34 **Davide Molino** (Politecnico di Torino, Dipartimento di Scienza Applicata e Tecnologia DISAT, Italy), Alessandro Pedico, Andrea Lamberti, Sergio Bocchini, "Novel infiltration method of membranes over activated carbons electrodes"
- P35 **Omar Hassan, Yassine Ben Cherifi** (Univ. Grenoble Alpes, CEA, CNRS, IRIG, SyMMES, Grenoble, France), Giovanna Franklin, Yves Chenavier, Patrice Simon, Pierre-Louis Taberna, Lionel Dubois, Stéphanie Pouget, Hakima Mendil-Jakani, Florence Duclairoir, Graphene based materials: From Green Synthesis to Physico-Chemical Analysis and Electrochemical Performance as Supercapacitors

Advanced characterization techniques

- P36 **Min Li** (Department of Industrial Chemistry "Toso Montanari", University of Bologna, Italy), Mariam Maisuradze, Mattia Gaboardi, Giuliana Aquilanti, Jasper Rikkert Plaisier, Marco Giorgetti, "Operando synchrotron XAS/XRD Investigation of Zn Insertion into Manganese Hexacyanoferrate Cathode Material"
- P37 **Nestor Calabia Gascon** (Department of Materials and Chemistry, Research Group Electrochemical and Surface Engineering SURF, Vrije Universiteit Brussel, Belgium), Roald Herckens, Guido Desie, Herman Terryn, Annick Hubin, "ORP-EIS and interfacial analysis of PEDOT:PSS – aluminium electrolytic capacitors"

- P38 **Hung-Wei Li** (Ecole Polytechnique Fédérale de Lausanne EPFL, NANOLAB, Lausanne, Switzerland), Victoria Manzi-Orezzoli, Justyna Piwek, Adrian-Mihai Ionescu, Clara-Fausta Moldovan, "Microsupercapacitors: Scaling Down and Electrode Architecture Optimization"
- P39 **Andrés Camilo Parejo Tovar** (Institute of Chemistry and Technical Electrochemistry, Poznan, Poland), François Béguin, Paula Ratajczak, "Assessment of Electrodes Operation in Carbon-based Na-ion Capacitors by Potentiostatic Electrochemical Impedance Spectroscopy"
- P40 **Federico Raffone** (Center for Sustainable Future Technologies CSFT@Polito, Istituto Italiano di Tecnologia, Turin, Italy), Giancarlo Cicero, Andrea Lamberti, "Origin of charge distribution asymmetry at the ionic liquid/electrode interface"
- P41 **Laurence Athouël** (Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, Nantes, France), Camille Douard, Olivier Crosnier, Thierry Brousse, "Effect of the intercalated cation size in birnessite on charge storage in neutral aqueous electrolyte"
- P42 **Sylwia Sroka** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poland), Przemyslaw Galek, Anetta Platek-Mielczarek, Jakub Menzel, Krzysztof Fic, "New insights into Point of Zero Charge determination with Electrochemical Quartz Crystal Microbalance"

Micro and flexible supercapacitors

- P43 **Davide Arcoraci** (Department of Applied Science and Technology, Polytechnic of Turin, Italian Institute of Technology, Centre for Sustainable Future Technologies, Turin, Italy), M. Reina, P. Zaccagnini, A. Pedico, A. Lamberti, F. Pirri, "Enhancing the Performance and Mechanically Stability of Planar Hybrid Micro-Supercapacitors Using Dendritic-Gold as Current Collector"
- P44 **Marco Reina** (Department of Applied Science and Technology, Polytechnic of Turin, Italian Institute of Technology, Centre for Sustainable Future Technologies, Turin, Italy), Davide Arcoraci, Pietro Zaccagnini, Andrea Lamberti, Matteo Angelozzi, Matteo Cocuzza, Thierry Ouisse, Jesus Gonzalez-Julian, "Electrodeposition of MXene and Manganese Oxide onto laser induced graphene for fabrication of a green hybrid supercapacitor"
- P45 **Roberto Speranza** (Department of Applied Science and Technology, Polytechnic of Turin, Italian Institute of Technology, Centre for Sustainable Future Technologies, Turin, Italy), Pietro Zaccagnini, Andrea Lamberti, "High voltage indoor photo-capacitor: flexible and rigid energy source for IoT devices under ambient light"
- P46 **Francesco Seller** (Department of Applied Science and Technology, Polytechnic of Turin, Italian Institute of Technology, Center for sustainable and future technology, Turin, Italy), Mara Serrapede, Alessandro Pedico, Francesco Perrucci, Luciano Scaltrito, Jennifer Tata, Andrea Lamberti, "Carbon based electrodes for Wire-Shaped Supercapacitor"
- P47 **Yannik Bräuniger** (Dresden University of Technology, Department of Inorganic Chemistry I, Dresden, Germany), Dr. S. Lochmann, C. Gellrich, Dr. L. Galle, Dr. J. Grothe, Prof. S. Kaskel, "Monolithic in-plane integration of gate-modulated switchable supercapacitors (ipG-Cap)"
- P48 **Federico Poli** (Department of Chemistry "Giacomo Ciamician" Alma Mater Studiorum Università di Bologna, Italy), Giacomo Selli, Riccardo Neri, Leonardo Gasperini, Chiara Gualandi, Francesca Soavi, Davide Fabiani, "Ionic liquid-based-Electrospun piezo-supercapacitors: a strategy to design autonomous devices"
- P49 **Agata Moysowicz** (Department of Process Engineering and Technology of Polymer and Carbon Materials, Faculty of Chemistry, Wrocław University of Science and Technology, Wrocław, Poland), Karolina Kordek-Khalil, Adam Moysowicz, "Carbon cloth decorated with nanostructured manganese oxide as a flexible electrode for supercapacitor applications"
- P50 **Daniele Pontiroli** (Department of Mathematical, Physical and Computer Sciences, University of Parma, Italy), Fornasini, G. Magnani, S. Scaravonati, A. Morengi, M. Sidoli, D. Bersani, G. Bertoni, L. Aversa, R. Verucchi, M. Riccò, "In-situ decoration of laser-scribed graphene with TiO₂ nanoparticles for scalable micro-supercapacitor applications"

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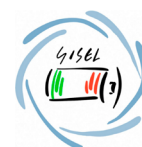
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