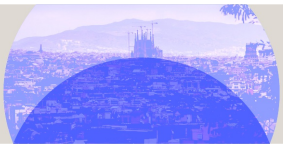


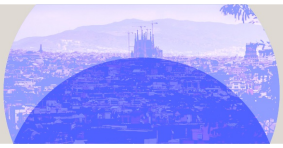
Materials for Sustainable Development Conference (MAT-SUS) (NFM22)

#SusEnergy - Sustainable materials for energy storage and conversion

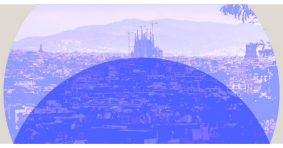
Barcelona, Spain, 2022 October 24th - 27th
Conference Chairs: Tim-Patrick Fellinger and Magda Titirici

Conference Program

October 24th - Day 1 (Monday)	
08:55 - 09:00	**Room A1 - Chair Introduction**
	Session 1.1 Chair: Magda Titirici
09:00 - 09:30 1.1-I1	Corina Andronescu *(University Duisburg-Essen)* High Entropy Alloys as Novel Electrocatalyst Materials and how to Evaluate their Electrocatalytic Activity
09:30 - 10:00 1.1-I2	Tengfei Song, Lin Chen, Brij Kishore, Emma Kendrick *(School of Metallurgy and Materials, University of Birmingham)* A sustainable sodium ion battery materials life-cycle
10:00 - 10:30 1.1-I3	Davide Menga *(Department of Chemistry, Technical University of Munich)*, Tim Fellinger Fe-N-C electrocatalysts synthesized from Zn-N-C materials via an imprinting strategy
10:30 - 11:15	**Coffee Break**
	Session 1.2 Chair: Emma Kendrick
11:15 - 11:30 1.2-T1	Jan Büttner *(Cluster of Excellence livMatS, University of Freiburg)*, Taisiia Berestok, Stephan Burger, Michael Daub, Harald Hillebrecht, Ingo Krossing, Anna Fischer 2D halide-perovskites as multifunctional photobattery materials – Fundamental Investigations Regarding Stability, Lithium Intercalation and Light Induced Processes
11:30 - 11:45 1.2-T2	Biswajit Bhattacharyya *(Institute of Chemistry, University of Potsdam, Germany)*, Christian Balischewski, Eric Sperlich, Christina Günter, Stefan Mies, Andreas Taubert Growing of 1D Low Melting Transition Metal Halides in Ionic Liquids with Promising Optoelectronics and Ionic Conductivities
11:45 - 12:00 1.2-T3	Andres Parra-Puerto *(Department of Chemistry, Imperial College London, White City Campus, London, W12 0BZ, UK)*, Jack Dawson, Mengjun Gong, Javier Rubio-Garcia, Anthony Kucernak Carbon Materials for Energy Storage from Redox Flow Batteries to Lithium Sulfur Batteries, Catalyst for Alkaline Electrolysers and Hybrid Redox Flow Batteries
12:00 - 12:15 1.2-T4	María Paula Salinas-Quezada *(Department of Chemistry, Center for High Entropy Alloy Catalysis, University of Copenhagen)*, Paula Sebastián-Pascual, Jan Rossmeisl, Krishanu Biswas, María Escudero-Escribano Study the oxidation of carbon monoxide on extended high entropy alloys
12:15 - 12:30 1.2-T5	Angus Pedersen *(Department of Materials Imperial College London)*, Jesus Barrio, Alain Li, Rhodri Jervis, Dan Brett, Saurav Sarma, Ifan Stephens, Maria-Magdalena Titirici Atomic Fe in N-doped Carbon for O2 reduction: How to Achieve High Fe Loading?
12:30 - 12:45 1.2-T6	Ignacio Sanjuán Moltó *(Technical Chemistry III, Faculty of Chemistry, and CENIDE (Center for Nanointegration University Duisburg-Essen))*, Corina Andronescu, Vimanshu Chanda, Vaibhav Kumbhar Gas diffusion electrodes based on transition metal oxides supported on polybenzoxazine-derived M-N-Cs for the efficient production of syngas
12:45 - 15:25	**Lunch**
15:25 - 15:30	**Room A1 - Chair Introduction**
	Session 1.3 Chair: Tim-Patrick Fellinger
15:30 - 16:00 1.3-I1	Frederic Jaouen *(CNRS Institut Charles Gerhardt Montpellier, UMR 5253)* Degradation mechanisms of Fe-N-C catalysts in acidic and alkaline environments
16:00 - 16:30 1.3-I2	Ana Jorge Sobrido *(School of Engineering and Materials Science, Queen Mary University of London.)*, Jorge Pavel Victoria Tafoya, Linh Tran Thi Ngoc, Michael Thielke Sustainable Electrospun Fibres as Electrodes for Energy Conversion and Storage



October 25th - Day 2 (Tuesday)	
08:55 - 09:00	**Room A1 - Chair Introduction**
	Session 2.1 Chair: Tim-Patrick Fellinger
09:00 - 09:30 2.1-I1	Hanguang Zhang, Yanghua He, John Weiss, Piotr Zelenay *(Materials Physics & Applications Division, Los Alamos National Laboratory)* Atomically Dispersed M-N-C Catalysts for Electrochemical Oxygen and Carbon Dioxide Reduction Reactions
09:30 - 10:00 2.1-I2	Philipp Adelhelm *(Humboldt University Berlin)* Inorganic Electrodes for Sodium-ion and Solid-state Batteries
10:00 - 10:30 2.1-I3	Maria del Carmen Gimenez *(Center for Research in Biological Chemistry and Molecular Materials (CiQUS), University of Santiago de Compostela)* Confined Electrocatalyst for Sustainable Energy Conversion
10:30 - 11:15	**Coffee Break**
	Session 2.2 Chair: Ana Jorge Sobrido
11:15 - 11:30 2.2-T1	Jesus Barrio *(Department of Materials, Royal School of Mines, Imperial College London)*, Angus Pedersen, Saurav Ch. Sarma, Silvia Favero, Mengjun Gong, Chang-Xin Zhao, Alain You Li, Qiang Zhang, Anthony Kucernak, Maria-Magdalena Titirici, Ifan E.L. Stephens Templated synthesis of a porous FeN5 electrocatalyst with high Fe utilization
11:30 - 11:45 2.2-T2	Markus Schleuning *(Institute for Solar Fuels, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH)*, Ibbi Y. Ahmet, Roel van de Krol, Matthias M. May Discussing the role of selective contacts and built-in field for charge separation and transport in photoelectrochemical devices
11:45 - 12:00 2.2-T3	Tim Wissink *(Department of Chemical Engineering and Chemistry, Eindhoven University of Technology,)*, Marta Figueiredo, Emiel Hensen In2O3 Nanoparticles for Electrocatalytic CO2 Reduction to Formate: Impact of Catalyst Phase and GDE Configuration
12:00 - 12:15 2.2-T4	Jarla Thiesbrummel *(Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, United Kingdom)*, Francisco Peña-Camargo, Kai Brinkmann, Martin Stolterfoht, Henry Snaith, Felix Lang Understanding and Minimizing VOC Losses in All-Perovskite Tandem Photovoltaics
12:15 - 12:30 2.2-T5	Asad Mehmood *(Bundesanstalt für Materialforschung und -prüfung (BAM))*, Tim-Patrick Fellinger Ionothermal Template Transformation as a Sustainable Route Towards Carbon Electrodes in Energy Storage and Conversion
12:30 - 12:45 2.2-T6	Sivia Favero *(Department of Chemical Engineering, Imperial College London, SW7 2AZ, UK)*, Alexander Bagger, Ruixuan Chen, Reshma Rao, Luke Higgins, James Durrant, Ifan Stephens, Magda Titirici Oxygen Reduction Mechanism on Fe Macrocycles: is charge transfer always coupled to adsorption?
12:45 - 15:25	**Lunch**
15:25 - 15:30	**Room A1 - Chair Introduction**
	Session 2.3 Chair: Tim-Patrick Fellinger
15:30 - 16:00 2.3-I1	George Hasegawa *(Institute of Materials and Systems for Sustainability, Nagoya University)* Pore Control of Carbon Monoliths for Energy Storage Applications
16:00 - 16:30 2.3-I2	Camelia Ghimbeu *(Institut des Sciences de Matériaux de Mulhouse)* Relationship Between the Hard Carbon Properties and their Performance in Na-ion Batteries
16:30 - 16:35	**Symposium Closing**
17:15 - 20:00	**Poster Session**



October 26th - Day 3 (Wednesday)	
19:30 - 22:00	**Social Dinner**
October 27th - Day 4 (Thursday)	
17:15 - 17:30	**General Closing**

Poster Contribution

164	Veenu Veenu *(Indian Institute Of Science (Bengaluru Urban, Karnataka))*, Chinmoy Ranjan, Dwaipayan Roychowdhury Insights into the Effect of Pb on Formic Acid Electro-Oxidation on Pt
291	Taisiia Berestok *(Cluster of Excellence livMatS @ FIT – Freiburg Center for Interactive Materials and Bioinspired Technologies, University of Freiburg, Germany)*, Christian Diestel, Niklas Ortlieb, Jan Buettner, Stefan W. Glunz, Anna Fischer Integrated Perovskite-Mesoporous Carbon Photosupercapacitor with High Efficiency
295	Markus Schleuning *(Helmholtz Zentrum Berlin für Materialien und Energie,)*, Moritz Kölbach, Fatwa F. Abdi, Roel van de Krol, Klaus Schwarzburg, Rainer Eichberger, Dennis Friedrich, Hannes Hempel Charge Carrier Diffusion Length directly obtained from Photoconductivity Transients: Cases of BiVO4, amorphous and crystalline Si, and halide perovskites
339	Julian Martin *(Institute of Inorganic and Analytical Chemistry, University of Freiburg, Germany)*, Julia Melke, Jan Büttner, Anna Fischer Scalable and Tunable Synthesis of Sustainable Nitrogen-doped Hydrothermal Carbon Materials (N-HTC) as Support Material for Platinum/N-HTC ORR Catalysts
346	Patrick Elsaesser *(Freiburg Center for Interactive Materials and Bioinspired Technologies (FIT), University of Freiburg, Germany)*, Philipp Veh, Esmael Balaghi, Severin Vierrath, Matthias Breitwieser, Anna Fischer Fe-/Zn-doped and N-doped Carbon ORR Catalysts with Molecular Fe Nx Sites for High Performance Anion-Exchange Membrane Fuel Cells
353	Sarat Alabidun *(Department of Chemical Engineering, Imperial College London, London SW7 2AZ, England, UK.)*, Bethan J V Davies, Maria Crespo-Ribadeynera, Ifan E.L Stephens, Maria-Magdalena Titirici Understanding Electrolyte Degradation, Gas Evolution and SEI Formation in Hard Carbon Anodes in Sodium ion Batteries using Sensitive Instantaneous Electrochemistry Mass Spectrometry
354	Anastasia Teck *(Department of Chemical Engineering, Imperial College London, London SW7 2AZ, England, UK.)*, Huw Shiel, Ifan Stephens, Mary Ryan, Magda Titirici Understanding Aluminium Graphite Dual-Ion Batteries: Device Configuration and Interface Evolution