List of papers and posters

Papers are listed alphabetically by first author's surname

Effect of ammonium ions on a sulphonated anthraquinone-iron sulphate flow battery
Luis F. Arenas, Thomas Turek
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Research Center for Energy Storage Technologies, Clausthal University of Technology, Goslar, Germany

Application of polyurethane-, epoxy- and silicone-based sealants, coatings and adhesives in redox flow batteries
Andreas Arlt, Theresa Haisch, Armin Laube
Business Development, WEVO-CHEMIE GmbH, Ostfildern, Germany
DECHEMA-Forschungsinstitut, Frankfurt, Germany
Hochschule für Angewandte Wissenschaften, Hamburg, Germany

POM based sustainable electrolytes
Angela Barros, Unai Eletxigerra, Beñat Artetxe, Estibaliz Aranzabe, Juan Manuel Gutierrez-Zorrilla
Surface Chemistry and Nanotechnology Unit, Tekniker, Eibar, Spain
Organic and Inorganic Chemistry Department, Universidad del Pais Vasco (UPV/EHU), Leioa, Spain

HIGREEW:
Steps towards prototype construction of an AORFB
Aitor Beloki, Nerea Marquinez, Eduardo Sánchez-Díez, Michael Schäffer, Petr Mazur
CIC energiGUNE, Parque Tecnológico de Álava, Albert Einstein 48, 01510 Miñano, Álava, Spain
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New Technologies – Research Centre, University of West Bohemia, Univerzitní 8, 30614, Plzen, Czech Republic

Environmental modelling of a MW-scale vanadium flow battery - scenarios up to 2050
Nick Blume, Maik Becker, Thomas Turek, Christine Minke
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Research Center Energy Storage Technologies, Goslar, Germany
Institute of Mineral and Waste Processing, Recycling and Circular Economy Systems, Clausthal University of Technology, Clausthal-Zellerfeld, Germany

A design tool for tubular redox flow stacks
Fabian Brandes, Peter Kuhn, Simon Ressel, Thorsten Struckmann
Hamburg University of Applied Sciences, Hamburg, Germany

Low-cost ion exchange membrane development
Chiari Van Cauter, Yun Li, Ivo Vankelecom
Department of Microbial and Molecular Systems, KU Leuven, Leuven, Belgium

A new low-cost process to formulate mixed species Fe-Cr electrolytes directly from chromite for use in iron chromium flow batteries
Peter Chennells
Research and Development Department, RedoxOne, Paphos, Cyprus

Lessons from grid-scale VFB commercial deployments
Jean-Louis Cols
Invinity Energy Systems, Bathgate, Scotland, UK

Recent progress in organic-based aqueous flow batteries: synthetic and regeneration techniques
Eric M. Fell, Yan Jing, Min Wu, Meisam Bahari, Evan Wenbo Zhao, Marc-Antoni Goulet, Shijian Jin, Ali Davoodi, Erlendur Jónsson, Clare P. Grey, Roy G. Gordon, Michael J. Aziz
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From laboratory to field: transferring single cell performance to deployment-scale systems
Filippo Fenini, Mohammed Rahimi, Sara Noriega Oreiro, Anders Bentien
Department of Biochemical and Chemical Engineering, Aarhus University, Aarhus, Denmark

Progress in the development of an electrically rechargeable zinc-air flow battery with a two-electrode setup
Sascha Genthe, Ulrich Kunz, Thomas Turek
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Shapes, magnitudes and effects of differential pressure-induced membrane deformations in flow batteries
Jan Girschik, Leonie Sara Plaga, Arkadi Hahn, Anna Grevé, Christian Doetsch
Electrochemical Energy Storage, Fraunhofer Institute for Environmental, Safety and Energy Technology UMSICHT, Oberhausen, Germany

How do we achieve more scale in the flow battery industry?
Alan Greenshields, Julian Tanner
ESS Inc, Wilsonville, Oregon, USA
Tuva Partners, London, UK

Energy in a bottle - flow battery hibernation
Steven Hickey
Redflow, Brisbane, Australia

Identifying market opportunities and enablers for vanadium flow batteries
John Hilbert III, Mikhail Nikomarov, Pritil Gunjan, Maria Chavez, Dan Power
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Guidehouse Insights

Performance limitations of the Hydrogen-X flow batteries
Yohanes Antonius Hugo, Wiebrand Kout
Elestor B.V., 6812 AR Arnhem, the Netherlands

The demonstration and operation of a vanadium flow battery system for renewable energy integration
Jeehyang Huh, Shin Han
H2, Inc., Daejeon, Republic of Korea

Correlating observables for state of charge and state of health monitoring and crossover modelling of vanadium redox flow batteries
Niklas Janshen, Antonio Chica Lara, Thorsten Struckmann
Hamburg University of Applied Sciences, Hamburg, Germany
Instituto de Tecnología Química, Universitat Politècnica de València, Spain

Novel organic cathode materials for aqueous flow battery
Atsushi Kaiho, Shinya Nagatsuka and Go Mizutani
Nippon Kayaku Co., Ltd, Tokyo, Japan

Detailed model of a vanadium flow battery with the focus on porous separators and crossover mechanisms
Alexander Kubicka, Thomas Turek
Institute of Chemical and Electrochemical Process Engineering, Clausthal University of Technology, Clausthal-Zellerfeld, Germany.

In situ and in operando detection of redox reactions during vanadium transport in ion exchange membranes
Torben Lemmermann, Maik Becker, Thomas Turek, Ulrich Kunz
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Demonstration of a near-neutral Fe-Cr flow battery: IMABATTERY®
Liyu Li, Qingtao Luo, and Qinqing Shi
Cougar Creek Technologies, LLC. Kirkland, WA USA

Comparison study of vanadium flow battery systems from different manufacturers
Yifeng Li, Thomas Lüth
J.M. Voith SE & Co. KG, St. Pöltener Straße 43, 89522 Heidenheim, Germany

Off-grid renewable energy storage in an iron chromium flow battery for the South African energy storage sector
Nico Mans, Henning Krieg, Dolf Bruinsma and Derik van der Westhuizen
Hydrometallurgy Group, Chemical Resource Beneficiation, North-West University, Potchefstroom 2520, South Africa
Bruinsma Solutions, Potchefstroom 2520, South Africa

New fluorinated sealant for vanadium flow battery
Joseph Epoupa Mengou, Stefanno Cardamone, Alain Verschuere
Eni spa- Renewable, New Energies and Material Science Research Center, 28100 Novara, Italy
3M, Belgium

Vanadium market supply and demand
Terry Perles
US Vanadium, Hot Springs, Arkansas

Electrochemical rebalancing process for vanadium flow batteries: sizing procedure and economic assessment
Nicola Poli, Andrea Trovò, Massimo Guarnieri
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The role of flow batteries in the decarbonisation of shipping
Christopher Price, James Hancock, Anthony Price
Swanbarton Limited, Malmesbury, UK

Towards 100: A material-based cost minimization for different flow battery systems
Athul Seshadri Ramanujam, Veselin Miroslavov Veselinov, José Angel Horcajada Sanchez de Pablo, Aitor Gijon Mora
Energy Storage Solutions S.L.U., Chiva (Valencia), Spain

Dimensioning, control and placement of storage devices in the grid – An integrated simulation approach for vanadium flow batteries
Christina Schubert, Stephan Leyer, Jean-Regis Hadji-Minaglou, Karl-Heinz Pettinger
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Faculty of Science, Technology and Communication, University of Luxembourg, Luxembourg, Luxembourg

Two large scale flow battery systems
towards net-zero carbon emissions future
Toshikazu Shibata, Shuji Hayashi, Yoshiyuki Nagaoka, Takashi Yano
Sumitomo Electric Industries, Ltd.

Investigation of zinc deposition in a zinc / polyiodide redox flow battery
Lukas Siefert, Falko Mahlendorf, Harry Hoster
Department of Energy Technology, University Duisburg-Essen, Duisburg, Germany

High-efficiency and large-scale VRB-ESS® support carbon neutrality goals
Jim Stover, Bo Hu
VRB Energy Inc., Beijing, China

StaTuR - Redox flow stacks with tubular cell design
Thorsten Struckmann, Fabian Brandes, Peter Kuhn, Niklas Janshen, Armin Laube, Simon Ressel, Claudia Weidlich, Christian Modrzynski, Michael Jeske, Simon Fischer
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Uniwell Rohrsysteme GmbH & Co. KG, Ebern, Germany

Benchmarking flow cell performance
Adam Whitehead
Invinity Energy Systems, Bathgate, UK

Pore-scale resolved 3D Simulations of aqueous organic flow batteries
Amadeus Wolf, Hermann Nirschl
Institute of Mechanical Process Engineering and Mechanics, Karlsruhe Institute of Technology, Karlsruhe, Germany

A sub-millimetre, bundled co-axial microtubular flow battery cell with ultra-high volumetric power density
Yutong Wu, Fengyi Zhang, Ting Wang, Xing Xie, Ryan P. Lively, Nian Liu
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