PROF. DR. VOLKER PRESSER

PROFESSOR FOR ENERGY MATERIALS
EDITOR IN CHIEF

TEAM RESEARCH PROFILE

We synthesize, characterize, and apply **nanomaterials**. We use **electrochemistry** to enable, among others, **energy storage** (supercapacitors, redox electrolytes, batteries), **water treatment** (desalination, pollutant removal), and tailored **ion recovery** (esp. Lithium recovery). The foundation is the highly reversible ability of electroactive materials to immobilize ions via electrosorption and redox processes. **Carbon materials**, **2D materials** (e.g., **MXene**, **MBene**), and **hybrids** are promising materials with tunable structure, composition, and electrochemical properties. Redox electrolytes capitalize on rapid charge transfer when nanoconfined to create storage devices of high power and energy ratings. Combined with **material characterization techniques**, we use in-situ methods to gain novel insights into electrochemical processes. Our contributions extend from **basic research**, materials synthesis, and the refinement of testing procedures to **industrial collaboration** and technology development. We also implement the development of sustainable synthesis and materials along with **recycling**, **up-cycling**, and **second-life** applications.

CONTACT

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CURRENT APPOINTMENTS

- **Managing Co-Director** · SAARENE – SAARLAND CENTER FOR ENERGY MATERIALS AND SUSTAINABILITY, **SAARLAND UNIVERSITY**, Saarbrücken, Germany; *SINCE 10/2021*
- **Editor-In-Chief** · ENERGY ADVANCES, ***Royal Society of Chemistry***, *London, United Kingdom; SINCE 08/2021*
- **Full Professor (W3)** · **SAARLAND UNIVERSITY**, Saarbrücken, Germany; *SINCE 12/2015*
- **Research Department Leader** · **INM - LEIBNIZ INSTITUTE FOR NEW MATERIALS**, Saarbrücken, Germany; *SINCE 12/2015*

PAST APPOINTMENTS

- *04/2013-11/2015* · **Assistant Professor** (W1), ***Saarland University***, Saarbrücken, Germany
- *06/2012-11/2015* · **Junior Research Group Leader**, ***INM - Leibniz Institute for New Materials***, Saarbrücken, Germany
- *07/2011-05/2012* · **Research Assistant Professor**, ***Drexel University***, Philadelphia, USA
- *01/2010-12/2011* · **Humboldt Research Fellow**, ***Drexel University***, Philadelphia, USA

ACADEMIC TITLES

- *06/2009* · **Dr. rer. nat.** (*Doctor of Natural Sciences*)
  Eberhard Karls University, Tübingen, Germany (SUMMA CUM LAUDE)
- *02/2006* · **Dipl.-Min.** (*Diploma in Mineralogy*)
  Eberhard Karls University, Tübingen, Germany (MAGNA CUM LAUDE)

SELECTED AWARDS AND HONORS

- **Regiostars Award** of the ***European Union***. *2026*
- **Fellow** of the ***International Society of Electrochemistry*** (ISE). *2026*
- **Highly Cited Researcher** of the ***Web of Science Group***. *2025, 2023- 2021, 2018*
- **Zhaowu Tian Prize** for Energy Electrochemistry of the ***International Society of Electrochemistry***. *2022*
- **Fellow** of the ***Royal Society of Chemistry*** (RSC). *2020*
- **ARCHES Award** of the ***Minerva Foundation***. *2016*
- **Foundation Award** of the ***Prof. Lenz Foundation***. *2015*
- **Innovator of the Year** & **TR35 Award** of ***Technology Review Germany***. *2015*
- **Ross Coffin Purdy Award** of the ***American Ceramic Society (ACerS)***. *2013*
- **Heinz Maier Leibnitz Prize** of the ***German Research Foundation (DFG)***. *2013*
- **Early Excellence in Science Award** of the ***Bayer Foundation***. *2012*
- **Dissertation Award** of the ***Eberhard Karls Universität Tübingen***. *2010*
- **Bernd Rendel Prize** of the ***German Research Foundation (DFG)***. *2008*

FIVE SELECTED PUBLICATIONS

Currently, >330 peer-reviewed papers
with >44,000 citations without self-citations (h-index: 84)

- Kök, Eisawi, Tan, Ruthes, Quade, Naguib, Presser, "INTERLAYER-TAILORED ALKYL-MXENES FOR HIGHLY SELECTIVE HIGH PURITY ELECTROCHEMICAL LITHIUM-ION EXTRACTION", ACS Energy Letters, 11[1]: 508-516 (2026).
- Pamete, Köps, Kreth, Pohlmann, Varzi, Brousse, Balducci, Presser, "THE MANY DEATHS OF SUPERCAPACITORS: DEGRADATION, AGING, AND PERFORMANCE FADING", Advanced Energy Materials 13[29]: 2301008 (2023).
- Fleischmann, Zhang, Wang, Cummings, Wu, Simon, Gogotsi, Presser, Augustyn, "CONTINUOUS TRANSITION FROM DOUBLE-LAYER TO FARADAIC CHARGE STORAGE IN CONFINED ELECTROLYTES", Nature Energy 7[3]: 222-228 (2022).
- Wang, Velasco, Breitung, Presser, "HIGH-ENTROPY ENERGY MATERIALS IN THE AGE OF BIG DATA: A CRITICAL GUIDE TO NEXT-GENERATION SYNTHESIS AND APPLICATIONS", Advanced Energy Materials, 11[47]: 2102355 (2021).
- Srimuk, Su, Yoon, Aurbach, Presser, "CHARGE-TRANSFER MATERIALS FOR ELECTROCHEMICAL WATER DESALINATION, ION SEPARATION, AND THE RECOVERY OF ELEMENTS" Nature Reviews Materials, 5[7]: 517-538 (2020).

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