

# 10<sup>th</sup> Energy Colloquium of the Munich School of Engineering

## 1<sup>st</sup> Virtual Edition

# 10 years of MSE: Energy Research in Bavaria

July 30, 2020 – 8:30 a.m. to 6:00 p.m.

Please register by July 23<sup>rd</sup> to get your login information: <http://www.mse.tum.de>

**8:30 – 8:45 a.m.**

**Opening: Prof. Dr. Thomas Hamacher**  
Director, Munich School of Engineering, TUM

**8:45 – 9:15 a.m.**

**Keynote: Hydrogen – Energy and Fuel of the Future or Great White Hope?**  
Dr. Tobias Brunner, Hynergy

**9:15 – 11:00 a.m.**

***Energy Conversion and Storage at the Nanoscale***  
Session Chair: **Prof. Dr. Peter Müller-Buschbaum**

**Phase Transitions in Ni-rich Cathode Materials for Lithium-Ion Batteries: Boon or Bane?**  
Felix Riewald, BASF SE/Chair of Technical Electrochemistry, TUM

**Molecular Insight into the CO<sub>2</sub> and CH<sub>4</sub> Conversion: C-O and C-H Bond Activation and C-C Coupling**  
Nikita Levin, Chair of Physical Chemistry, TUM

**In-Situ Identification of Active Electrocatalytic Sites on Metal-Based Catalysts for Oxygen Reduction and Evolution Reaction**  
Regina Kluge, Physics of Energy Conversion and Storage, TUM

**In-Operando Stability Investigation of Biotemplated Photoactive Layers for Solar Cells**  
Julian Heger, Chair of Functional Materials, TUM

**11:00 – 11:15 a.m.**

**Coffee Break**

**11:15 – 12:00 p.m.**

***Energy Storage from Cradle to Roll-Out***  
Session Chair: **Prof. Dr. Andreas Jossen**

**Access Economy for Storage in Energy Communities**  
Niklas Vespermann, Chair of Renewable and Sustainable Energy Systems, TUM

**Influence of Battery Energy Storage Systems on the Carbon Footprint of Energy Systems**  
Anupam Parlikar, Institute for Electrical Energy Storage Technology, TUM

**12:00 – 12:30 p.m.**

**Lunch Break**

**12:30 – 2:00 p.m.**

**Poster Presentation and Q&A-Session**

**2:00 – 3:15 p.m.**

***From Energy Efficient to Smart Buildings***  
Session Chair: **Prof. Dr. Werner Lang**

**Indoor Farming – Optimize Efficiency**

Sabine Wittmann, Institute of Horticulture, HSWT

**BIM-Based Embedded Energy and Greenhouse Gas Emissions Analysis – A Case Study**

Patricia Schneider-Marin, Institute of Energy Efficient and Sustainable Design and Building, TUM

**Fast Harmonic Estimation Using Real-Time Embedded Controllers in CoSES Smart Grid**

Anurag Mohapatra, Center for Combined Smart Energy Systems, TUM

**3:15 – 3:30 p.m.**

**Coffee Break**

**3:30 – 4:45 p.m.**

***Building Blocks of a Future Energy Supply***  
Session Chair: **Prof. Dr. Hartmut Spliethoff**

**Power-to-Heat with Large Scale Thermochemical Energy Storage in Industrial Combined Heat and Power Plants**

Gesa Backofen, Chair of Energy Systems, TUM

**A Techno-Economic Optimization for Decentralized Waste-Heat Power Generation with a Steam-Rankine-Cycle**

Florian Raab, Power and Storage Technologies, THN

**100% Renewables for Bavaria - Structures, Costs and Benefits of Full Supply in All Sectors**

Jakob Schweiger, ZAE Bayern - Energy Storage

**4:45 – 5:15 p.m.**

**Keynote: Network TUM.PtX – Tackling the Energy Transition through Collaborative Research**

Dr. Sebastian Fendt, Munich School of Engineering, TUM

**5:15 – 5:30 p.m.**

**Summary and Closing**

**5:30 – 6:00 p.m.**

**Virtual Social Networking**