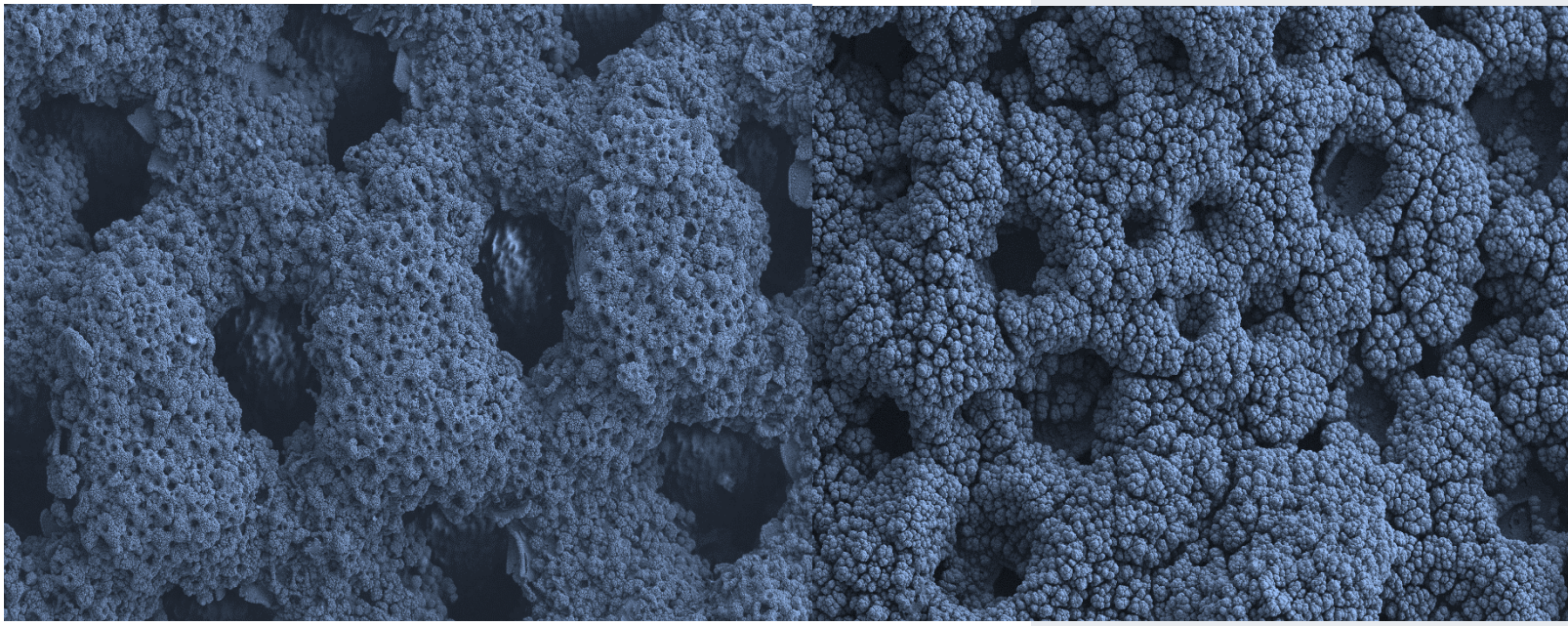
Additive Manufacturing of Energy Materials

1st Symposium 2023

Save the date

October 18, 2023
University of Twente
U Parkhotel



To meet the increasing energy requirements in a low-carbon economy, the development of new materials that improve the efficiency of sustainable large-scale energy conversion and storage systems is essential. Recently, there has been growing interest in exploring Additive Manufacturing (AM) for the production of Energy Materials, including batteries, cathalysts, supercapacitors, and fuel cells. The use of AM has numerous benefits over conventional manufacturing techniques, such as the ability to fabricate complex geometries, minimize material waste, and achieve precise specifications using a range of materials and composites. This capability makes AM an ideal choice for achieving pre-defined, site-specific properties, such as well-defined three-dimensional (3D) porous structures and novel materials tailored for energy applications.

The University of Twente will host the in-person one-day symposium expecting participants from multidisciplinary research (materials science, chemical engineering, physics, and mathematics), AM, and energy application communities.

Academic presentations

Industrial presentations

Poster session

Discussion round

Free of charge participation, but a limited amount (~100) of participants

Contact: AMforEnerg@utwente.nl

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4TU.High-Tech Materials

SCOPE

This networking event aims to facilitate collaboration and partnership opportunities among professionals, researchers, entrepreneurs, and industry leaders to explore cutting-edge technologies and solutions for a sustainable future. The symposium will cover a diverse range of topics including electrodes for CO2 electrochemical reduction, fuel cells, AM of porous/composite materials for energy systems, advanced catalyst synthesis routes, and modeling of additive manufacturing processes. This will eventually lead to highlighting the recent advances in this field and future directions for research and development of functionalized high-performance, cost-effective materials with a low carbon footprint, for a wide range of energy systems. Following this Symposium, we will organize a consortium workshop with potential partners and stakeholders to discuss the objectives, scope, and potential collaboration opportunities for a large program. By following this "networking" and "consortium building", we aim to establish a strong network of collaborators and form a consortium that is well-equipped to tackle the energy crisis. -

PROGRAM

09:30 - 10:00 WELCOME COFFEE

10:00 I. Gibson (UT) Unlocking Next-Generation Materials through Additive Manufacturing: Enhancing Energy Efficiency, Sustainability, and Performance
10:40 D. Jafari (UT) Additive manufacturing of energy materials from composites to porous materials
11:00 P. Taheri (TUD) Precisely manufactured electrodes for CO_2 electrochemical reduction
11:20 R. Kortlever (TUD) Engineering electrocatalytic materials for CO_2 conversion to fuels and bulk chemicals
11:40 F. Maresca (RUG) Prediction of yield strength of complex, concentrated "high entropy" alloys, and efficient screening

12:10 - 14:00 LUNCH – POSTER SESSION

14:00 D. Guintini (TU/e) AM and sintering strategies to tailor the performance of ceramics for the energy transition
14:20 S. Luding (UT) Modeling of Selective Laser Sintering of Particle Systems
14:40 Industrial presentation
15:00 M. N. Tsampas (DIFFER), Advanced catalyst synthesis routes for energy applications
15:20 Industrial presentation
15:40 R. van de Sanden (TU/e/NWO) NWO vision on energy materials

16:00 - 18:00 DRINK - DISCUSSION

ARE YOU READY TO PARTICIPATE?

University of Twente

U Parkhotel, De Veldmaat 8, 7522 NM Enschede

Registration Deadline: October 11, 2023

Poster Submission Deadline: October 6, 2023

Contact: AMforEnerg@utwente.nl

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