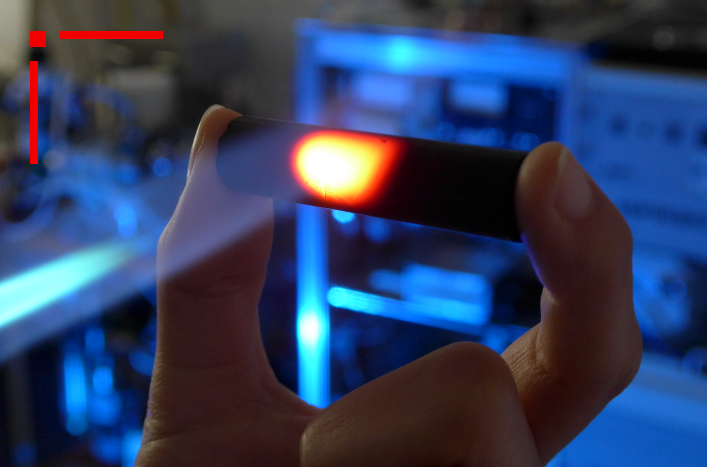




SMART FUNCTIONAL MATERIALS | **SFM**





PROFILE

Die Arbeitsgruppe Advanced Thermal Management besitzt ein vertieftes Verständnis in den Bereichen der hochgenauen sowie rückführbaren thermischen und infrarot-optischen Modellierung, Charakterisierung und Materialentwicklung. Dies bildet die notwendige Grundlage für ein innovatives und effizientes thermisches Management von Prozessen und Produkten zur Erhöhung von Energie- und Klimaeffizienz.

>> Tailor-made materials for the energy transition <<

SERVICES

Development of novel nanoporous functional materials

Organic, inorganic, hybrid, and scalable fabrication process

Porous model materials

Powders, monoliths, gradients or composites for systematic investigations of the influence of structural parameters on target properties in applications (thermal insulation, electrical storage, etc.)

Structural characterization

- Porosity (micro- and mesoporosity, pore size distribution)
- Specific surface areas (total, external)
- Particle sizes/distribution also in dispersions or other two-phase systems
- Skeletal density (He density) of the non-porous phase
- Typical appearances (visualization of the structure)

Thermal, mechanical and optical characterization

- Thermal conductivity; heat capacity
- Elastic modulus (also of small irregular samples)
- UV-VIS-IR



Electrochemical characterization

- Specific capacitance
- Frequency dependent resistances
- In-situ dilatometry at charge/discharge

Chemical composition

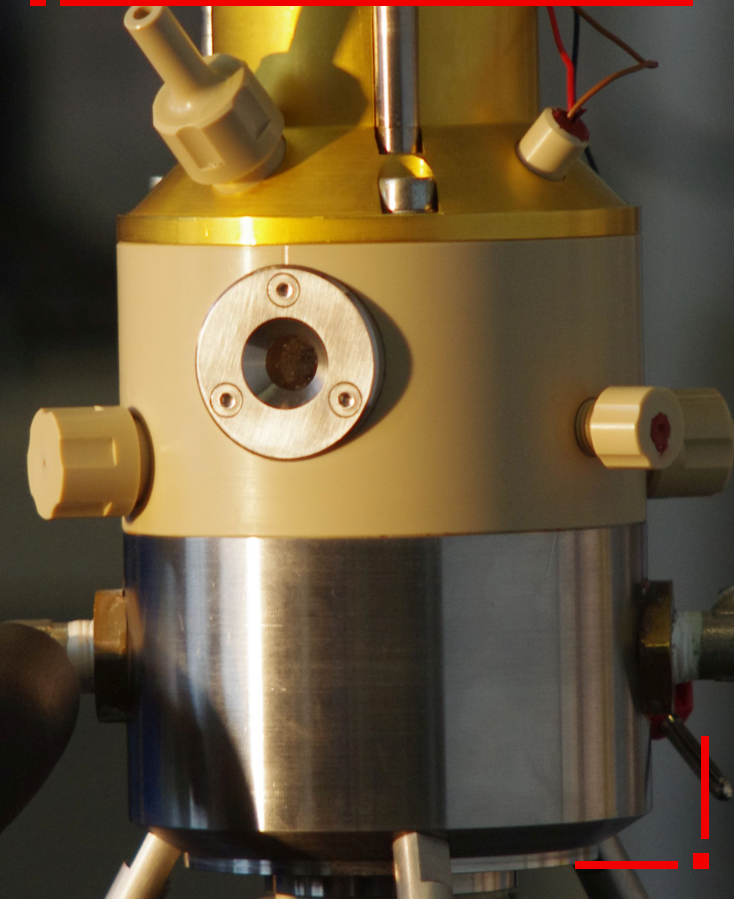
- Mass spectrometry, EDX

Modeling of material properties on different length scales



ABOUT US

The Center for Applied Energy Research e.V. (CAE) is a non-profit research institute and aims with its research and development activities to transfer ideas into practice in cooperation with commercial enterprises and other research partners and thus to make the greatest possible contribution to a sustainable, CO₂ emission-free and economical energy system. The CAE acts as a bridge between basic research and market-oriented development.



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Smart Functional Materials

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