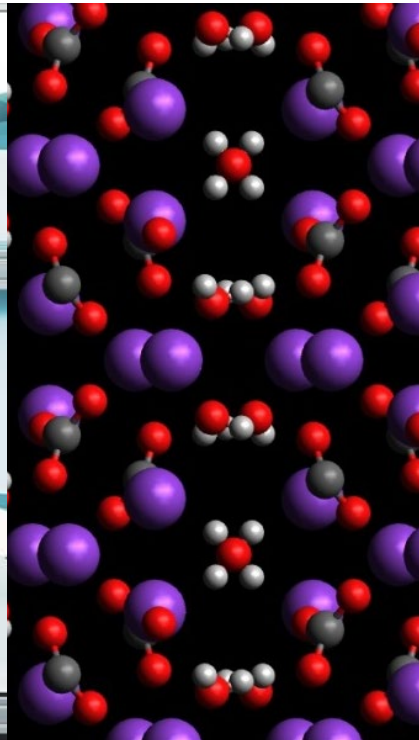
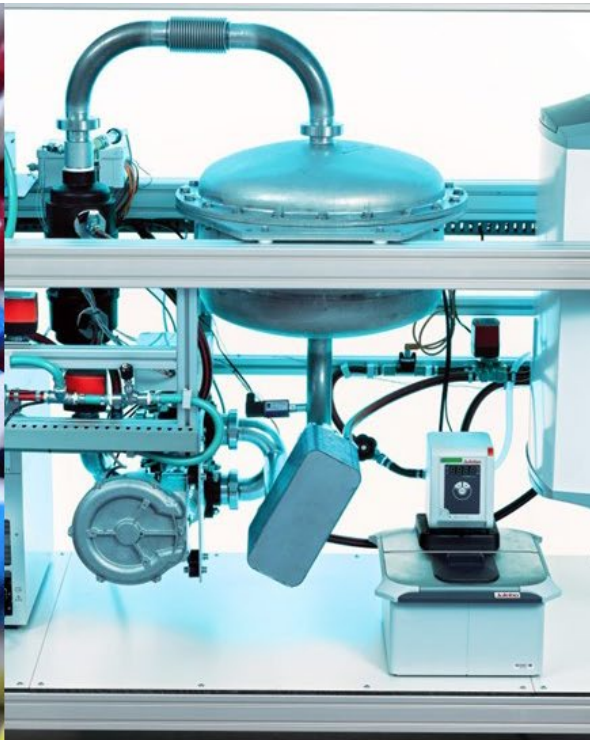
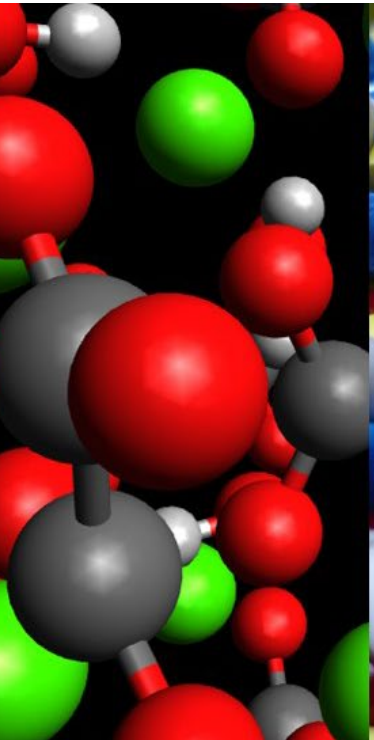


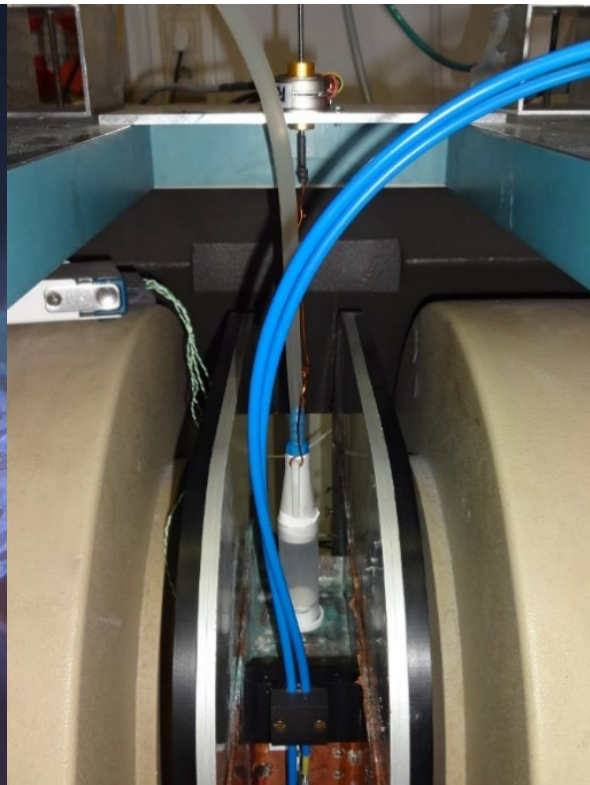
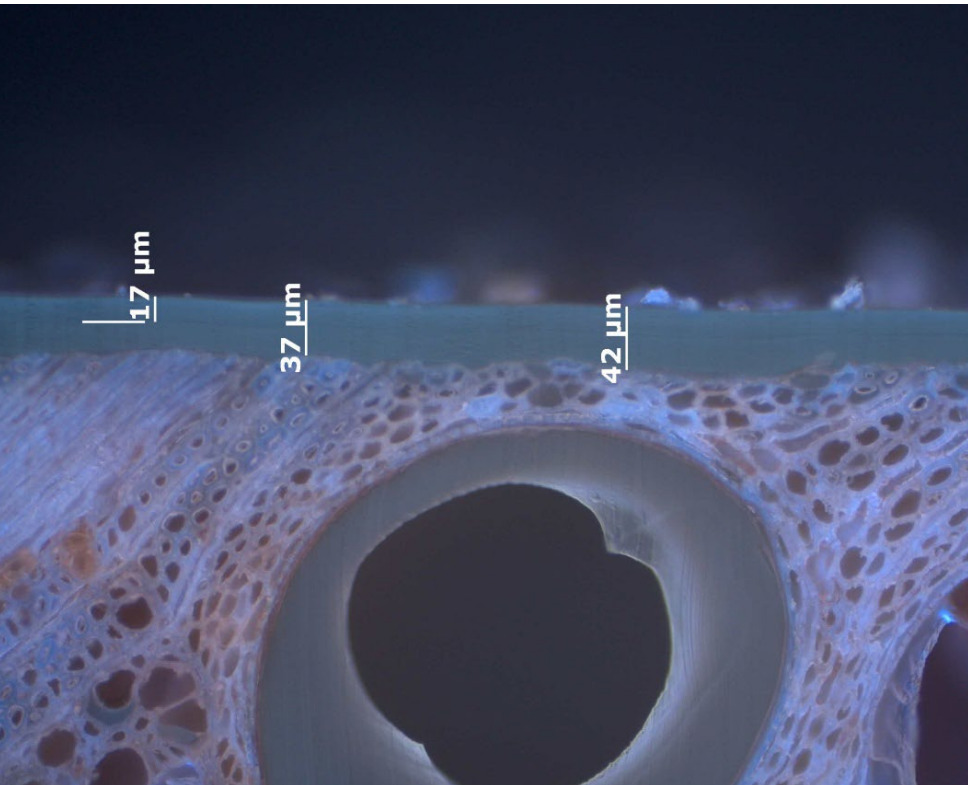
TPM: Thermal Energy Storage

@Applied Physics



TPM@AP: Transport in Permeable Media

transport processes and phase changes in porous media

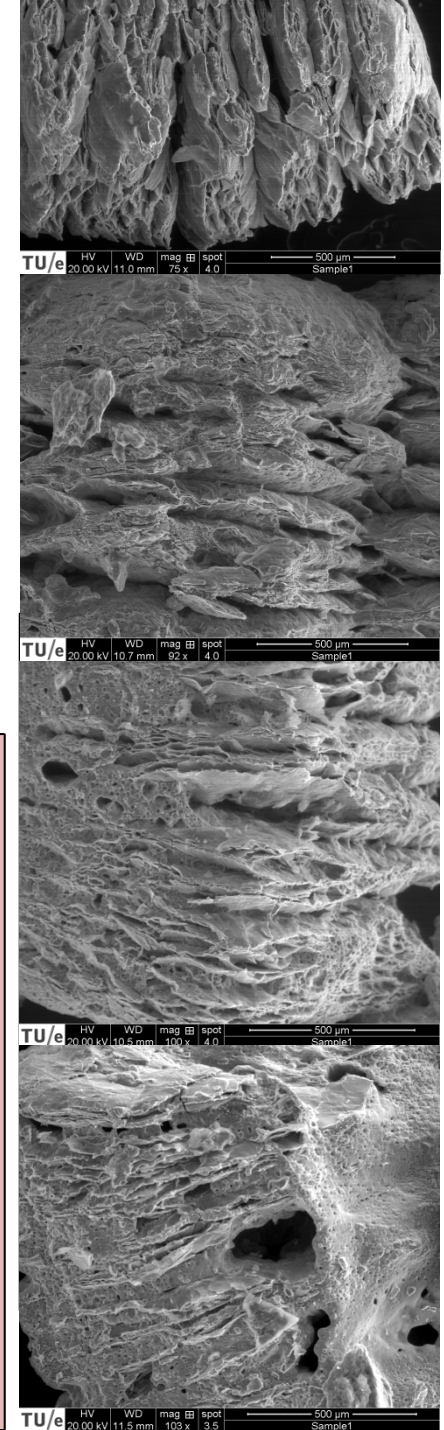
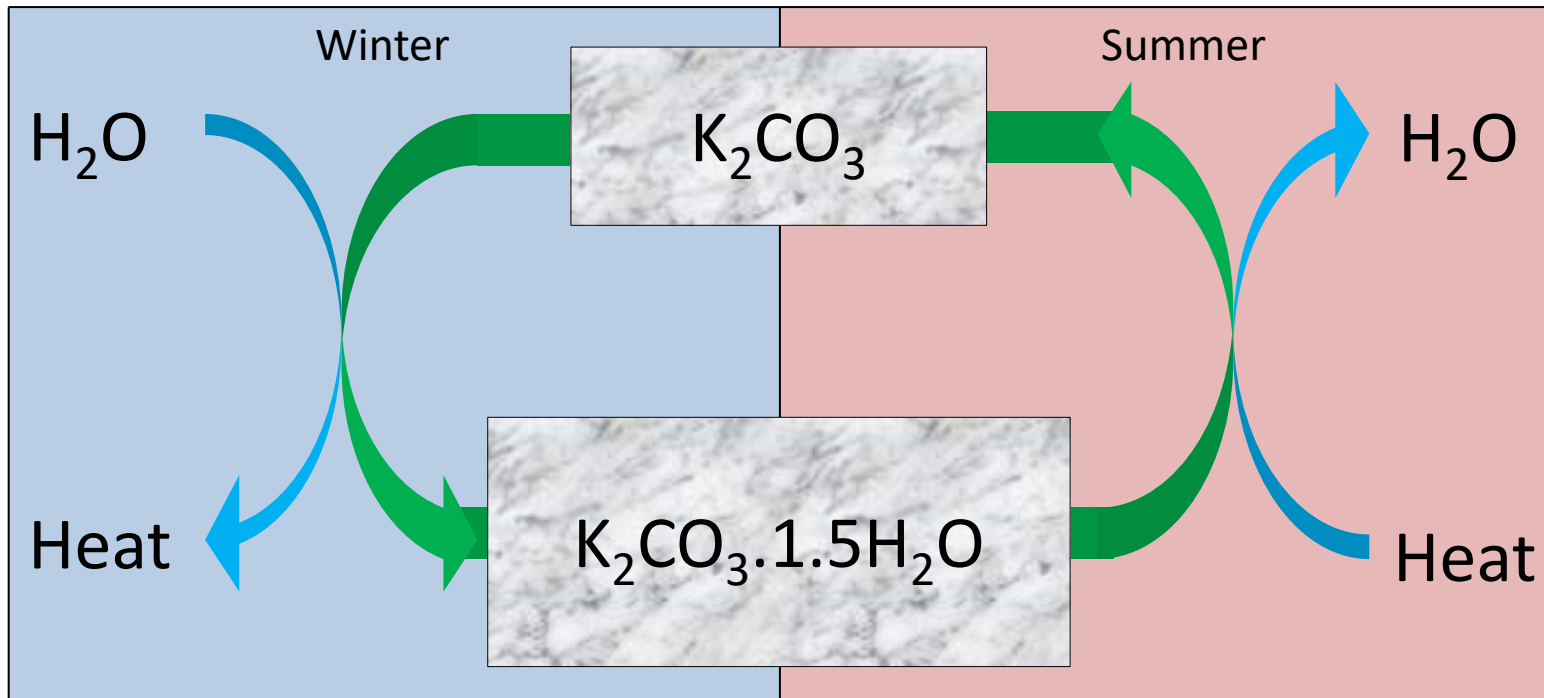


With advanced imaging tools for visualization of transport processes in porous media

TPM & energy research

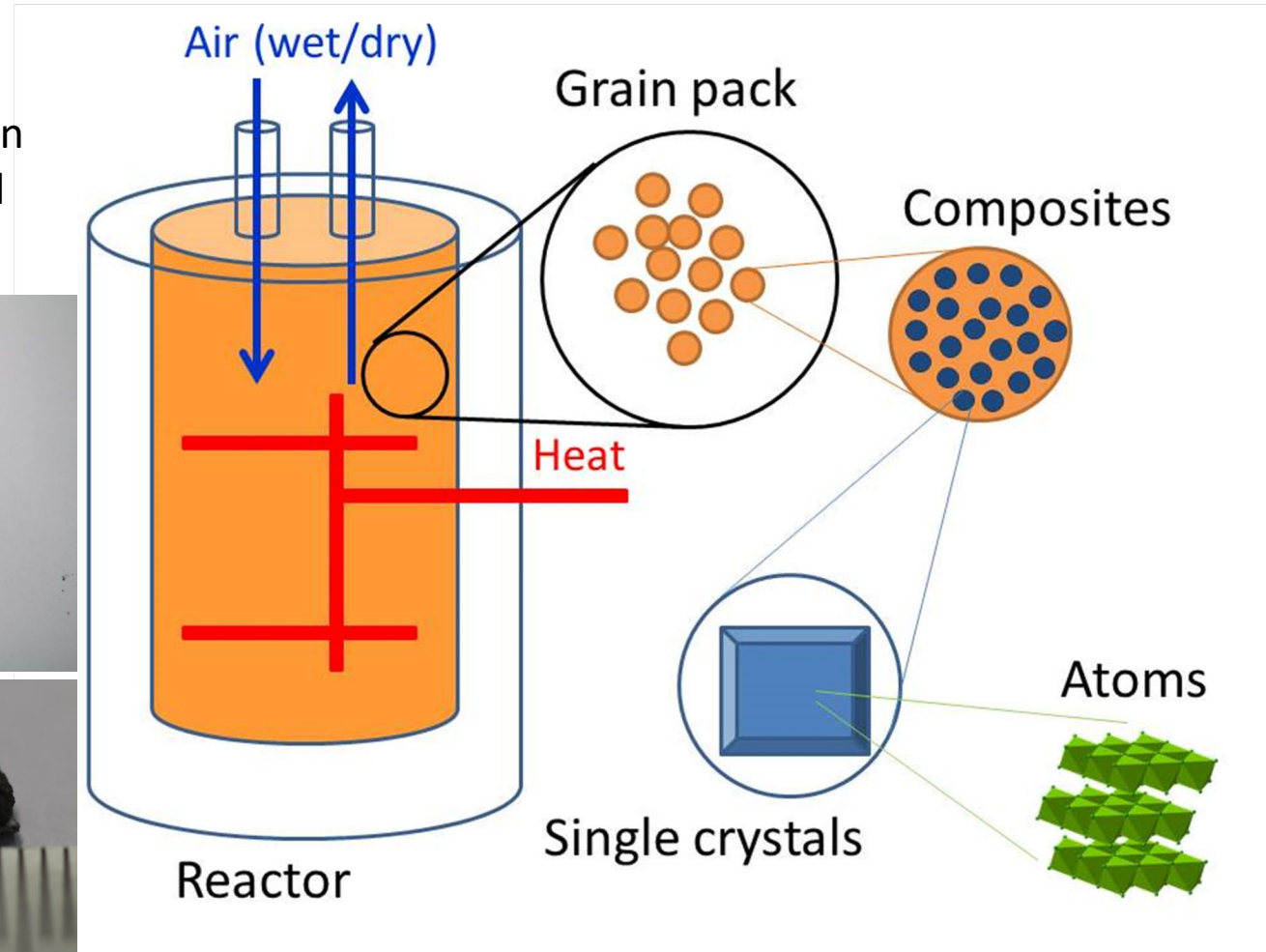
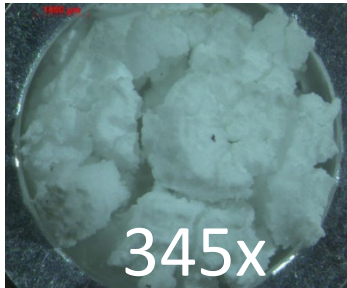
Thermochemical heat storage based on:

- Hydration/dehydration of crystal hydrates
- Absorption/desorption by porous matrices



Focus on materials for heat storage

Heat storage via water absorption and desorption by zeolites, MOF's, crystal hydrates.



TPM@AP: Spin-off company



TPM

[cellcius]

CELLCIUS. HEATBATTERY TECHNOLOGY

Possible MSc graduation projects

1. Atomistic understanding of power output in “heat storage”
 - Project 1A: **The kinetics of phase transitions in crystal hydrates.**
 - Project 1B: **Ionic mobility in crystal hydrates**
2. Materials design for “heat storage materials”
 - Project 2A: **Cyclic stability of crystal hydrates**
 - Project 2B: **Power enhancement of crystal hydrates**
3. The charging and discharging of heat storage devices
 - Project 3A: **Modeling of salt hydrate reactor**
 - Project 3B: **NMR/CT imaging of salt hydrate reactor**
4. (Atomistic) modelling of “heat storage materials”
 - Project 4A: **Water mobility at crystal hydrate interfaces**
 - Project 4B: **Water sorption by MOF's and zeolites**



Collaboration
with

CCER
Center for Computational Energy Research

@DIFFER

Options for external internships

In thermal energy storage

TNO



Deutsches Zentrum
DLR für Luft- und Raumfahrt

EMPA



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What we expect from you

- Strong interest in physics/chemistry
- Enthusiasm for the atomistic origins of ...
- Drive for doing experimental or analytical mathematical work
- Curiosity