

Low-temperature latent heat storage based on salt hydrates

Christoph Rathgeber

Stefan Hiebler

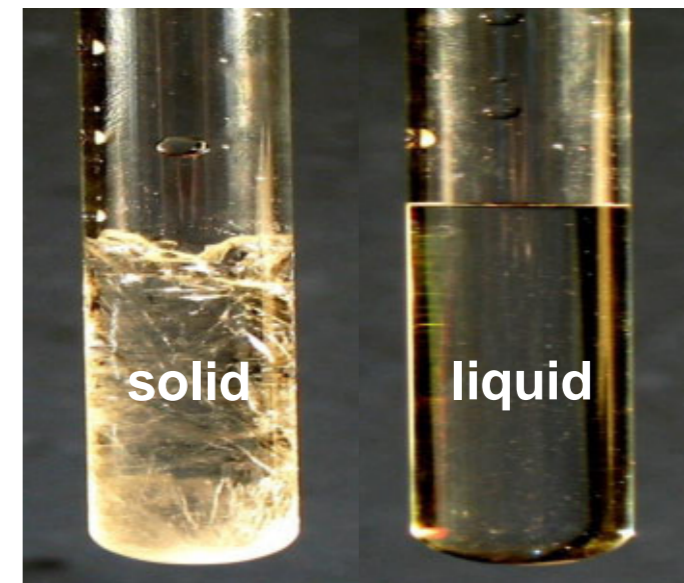
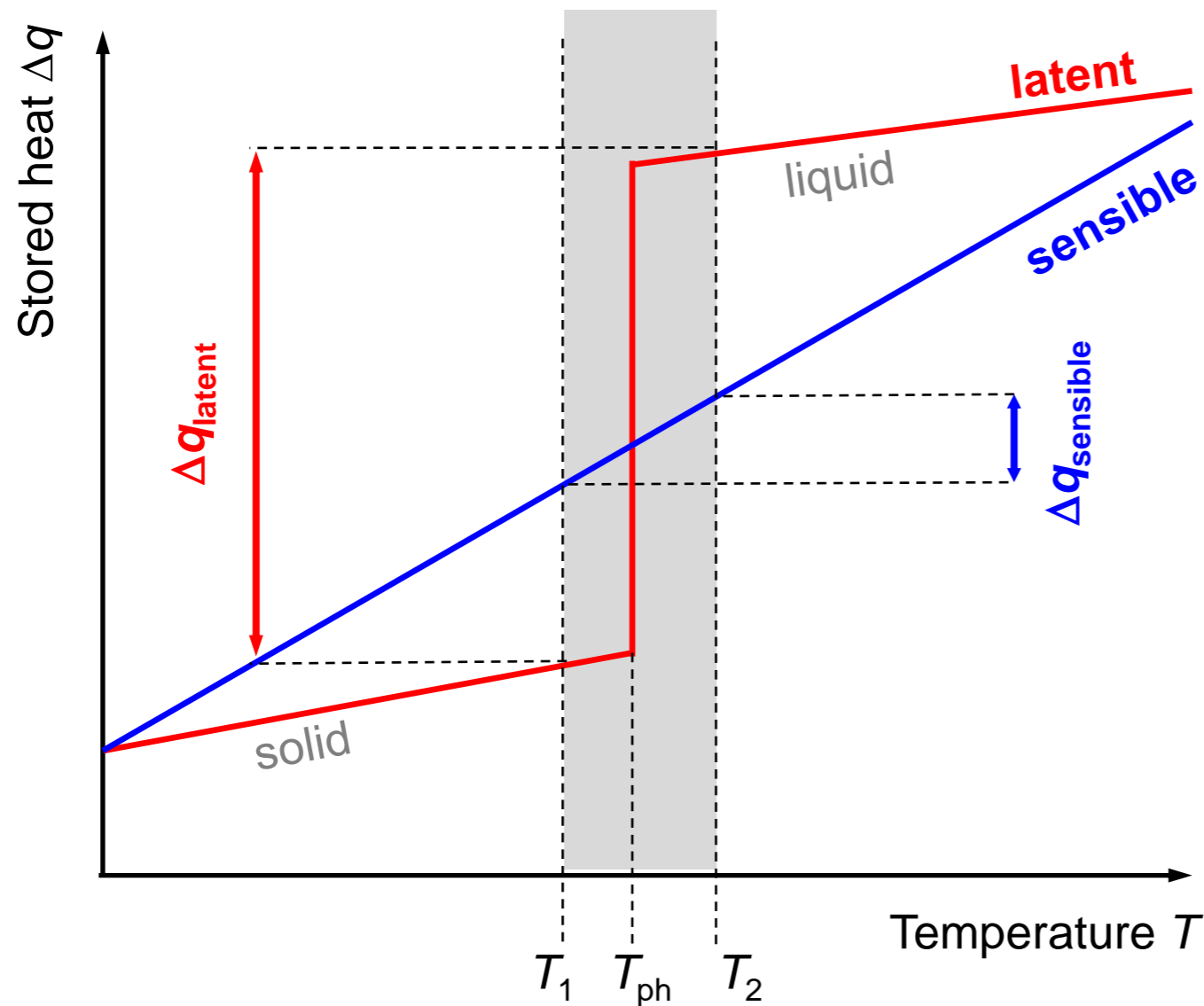
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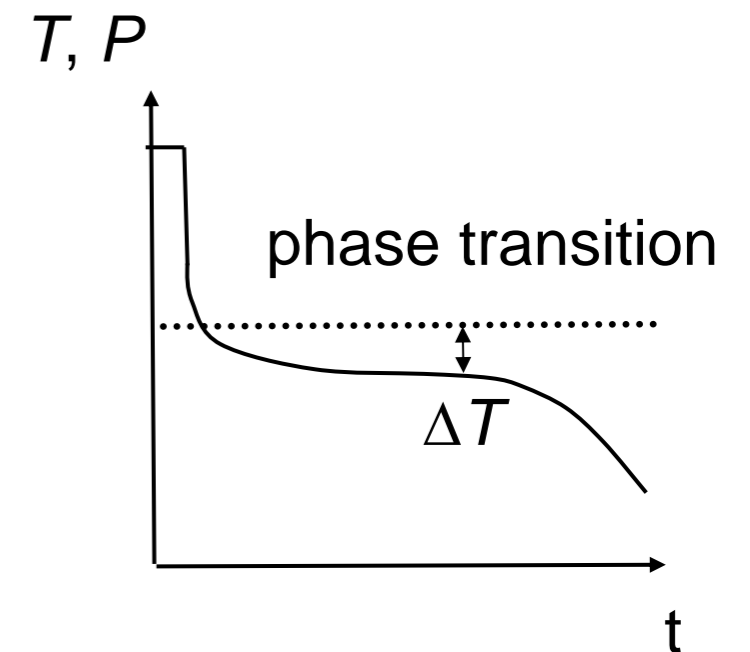
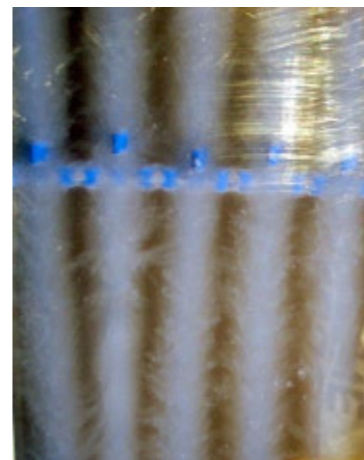
Phase change materials (PCM) for thermal energy storage



Calcium chloride hexahydrate
 $\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$

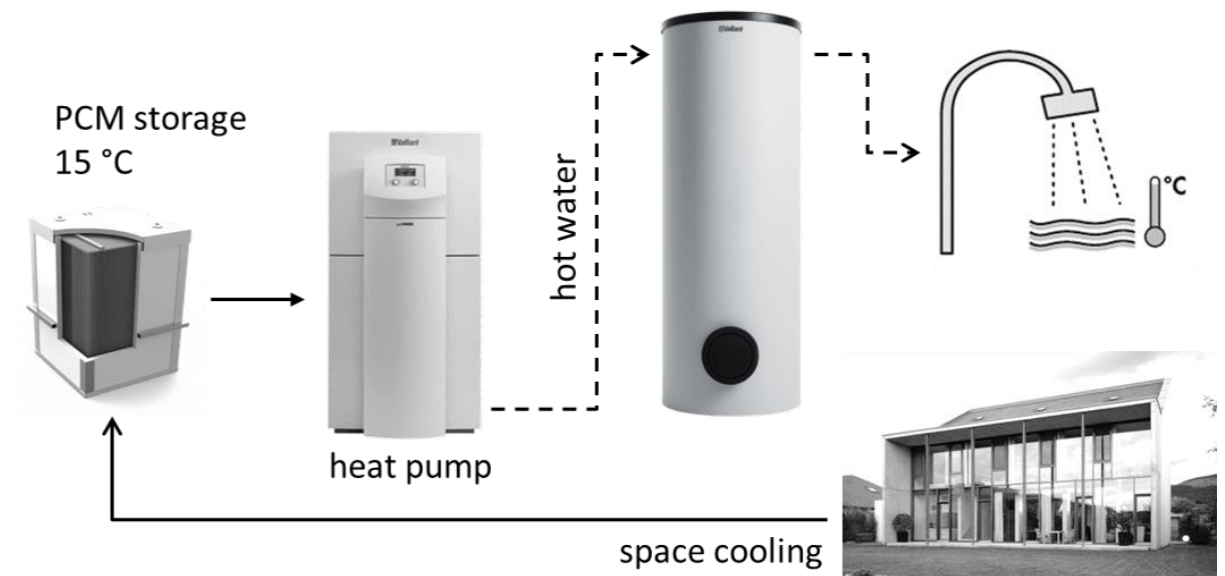
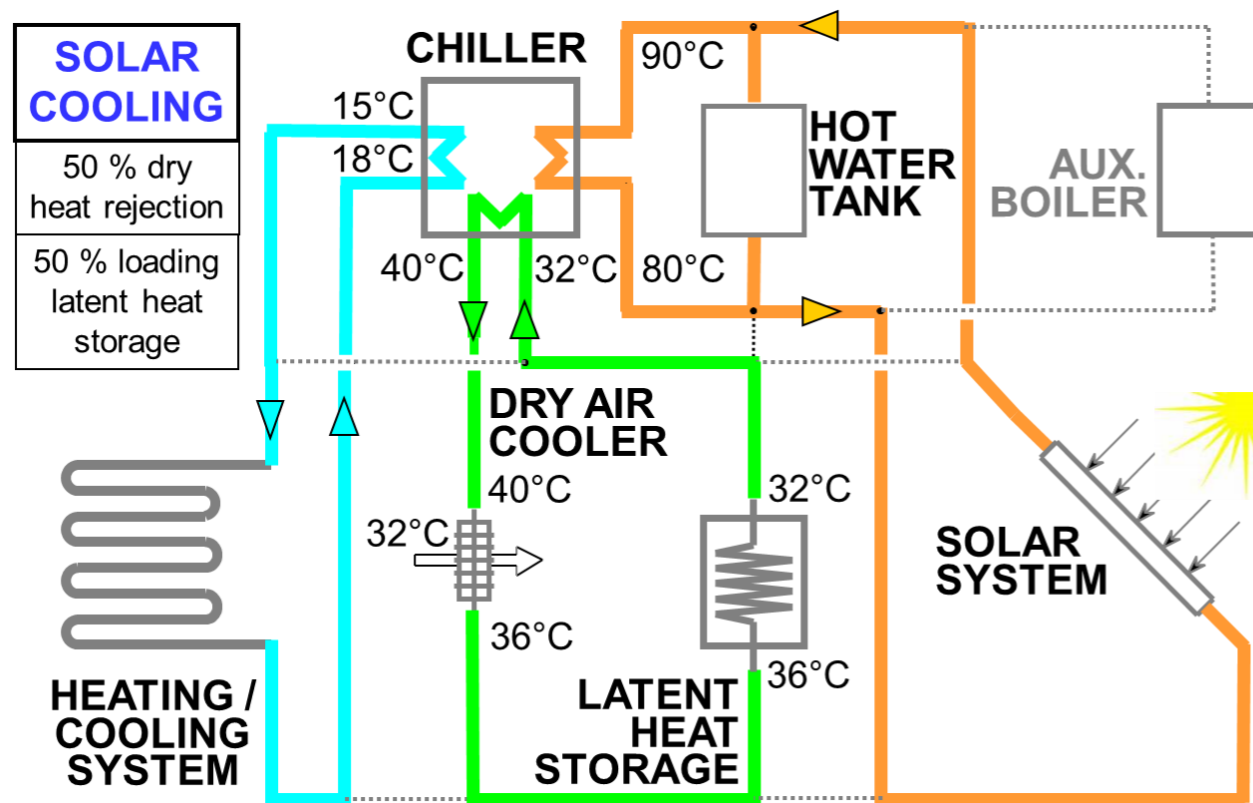
- High storage capacity in narrow ΔT around the phase change
- Each application requires a PCM with a suitable transition temperature

Latent heat storage based on salt hydrates



- PCM storage with immersed capillary tube heat exchanger
- Constant power output
- Optimized for thermal cycling stability of salt hydrates

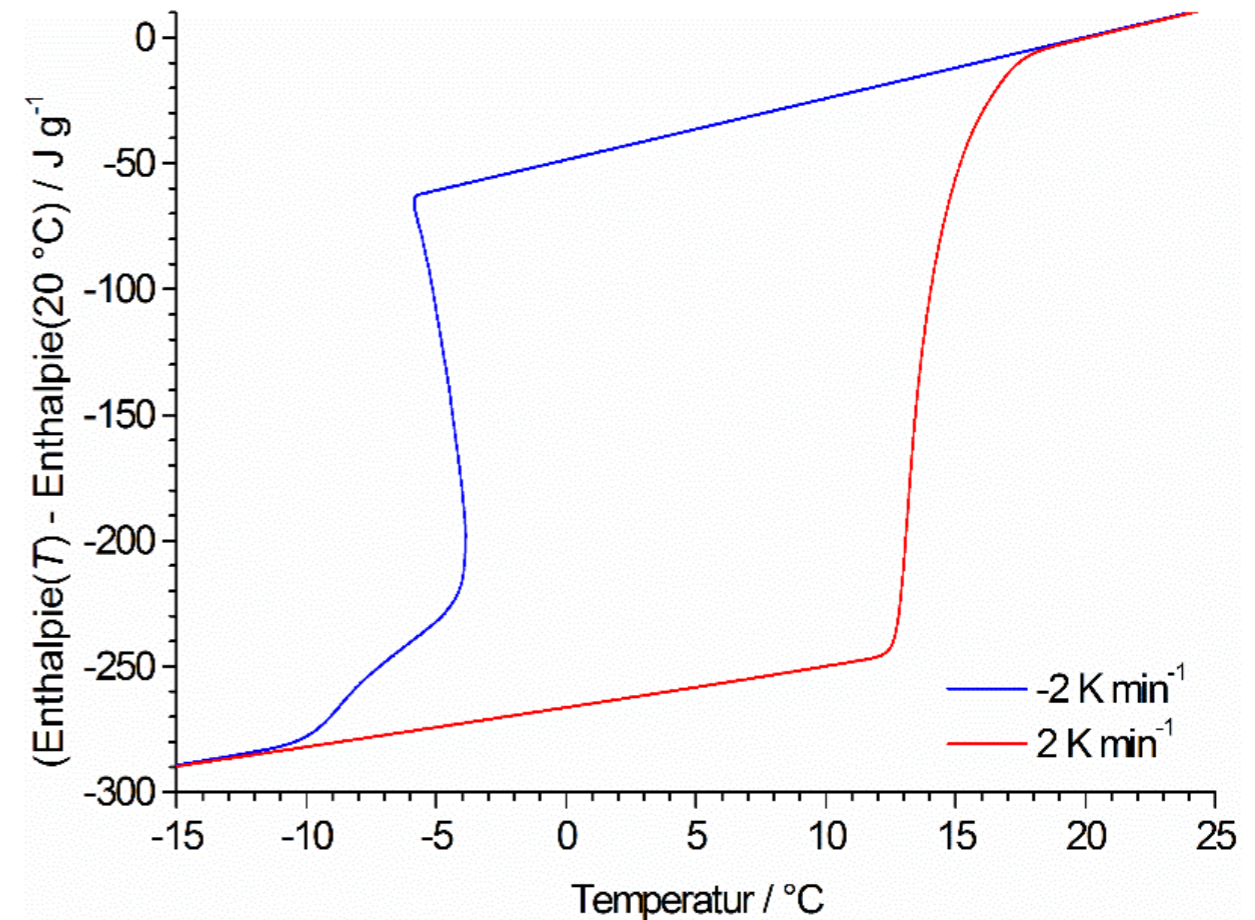
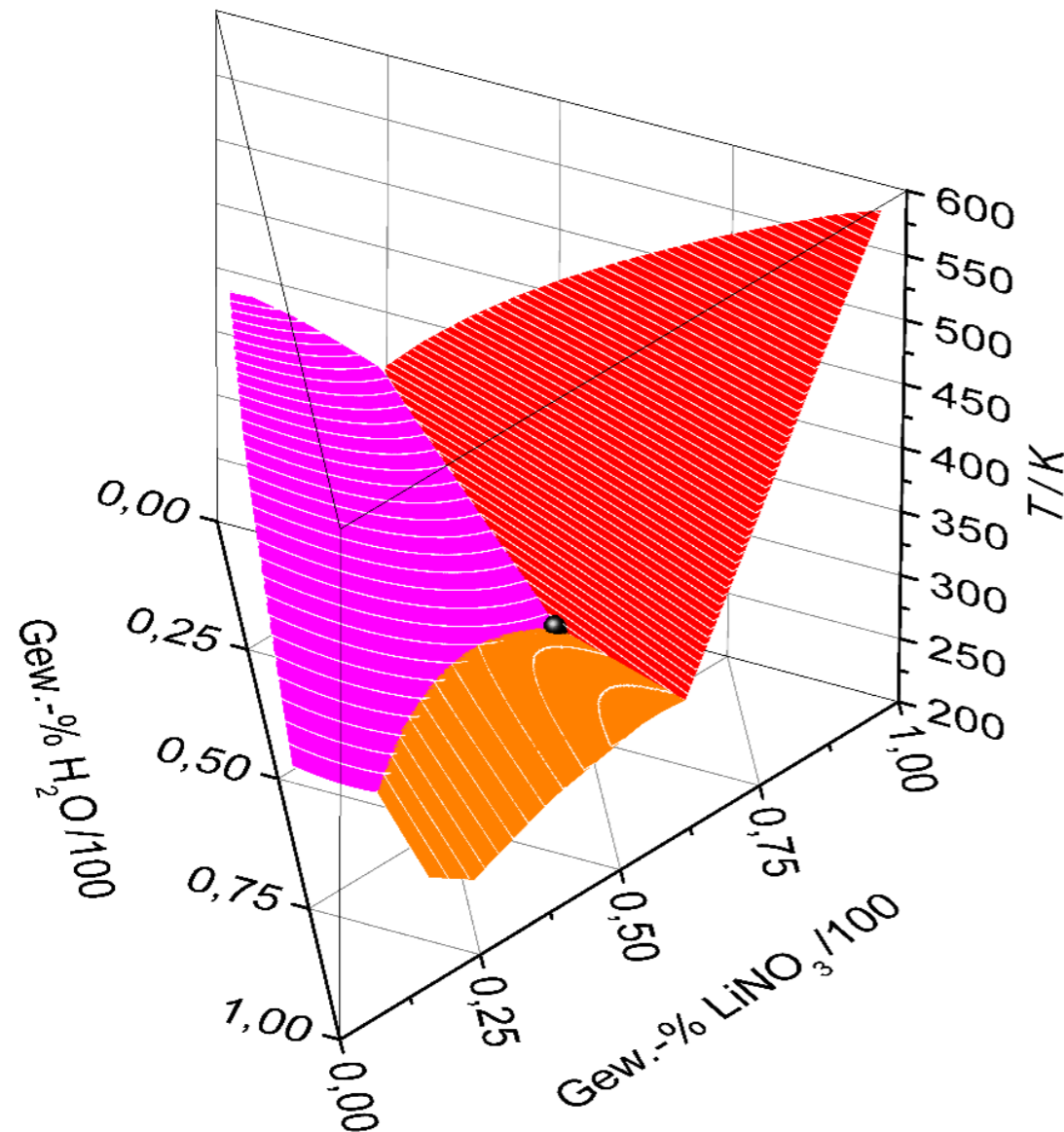
Application examples: Recooling of sorption chiller & Space cooling



- PCM storage supports dry air cooler

- Heat pump & PCM storage for DHW & space cooling
- Reject cold of heat pump used to crystallize PCM; cold delivered to the building to melt the PCM

Material development: Salt hydrate mixtures as new PCM



- Modified BET-model to calculate solid-liquid phase diagrams
- Experimental verification of predicted eutectics via calorimetry (e.g. DSC)

Thank you for your attention!

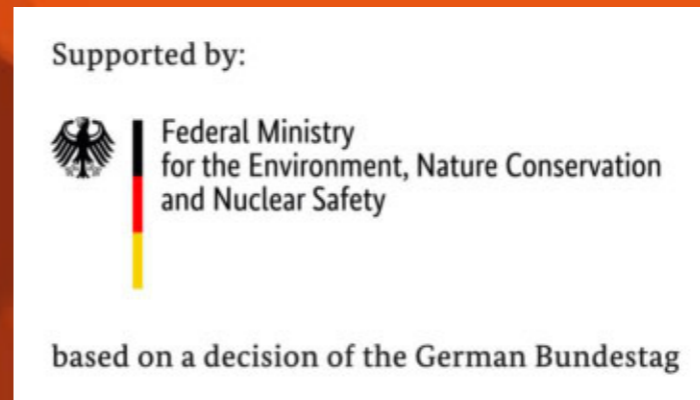
Christoph Rathgeber

ZAE Bayern
Bavarian Center for Applied Energy Research
Division: Energy Storage

Walther-Meissner-Str. 6
D-85748 Garching

Tel.: +49 89 329442-88
Fax: +49 89 329442-12

christoph.rathgeber@zae-bayern.de
<http://www.zae-bayern.de>



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