Low-temperature latent heat storage based on salt hydrates

Christoph Rathgeber
Stefan Hiebler
Phase change materials (PCM) for thermal energy storage

- High storage capacity in narrow $\Delta T$ 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

Grant numbers 0329605O, 03ESP138D, 03ET1342A

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