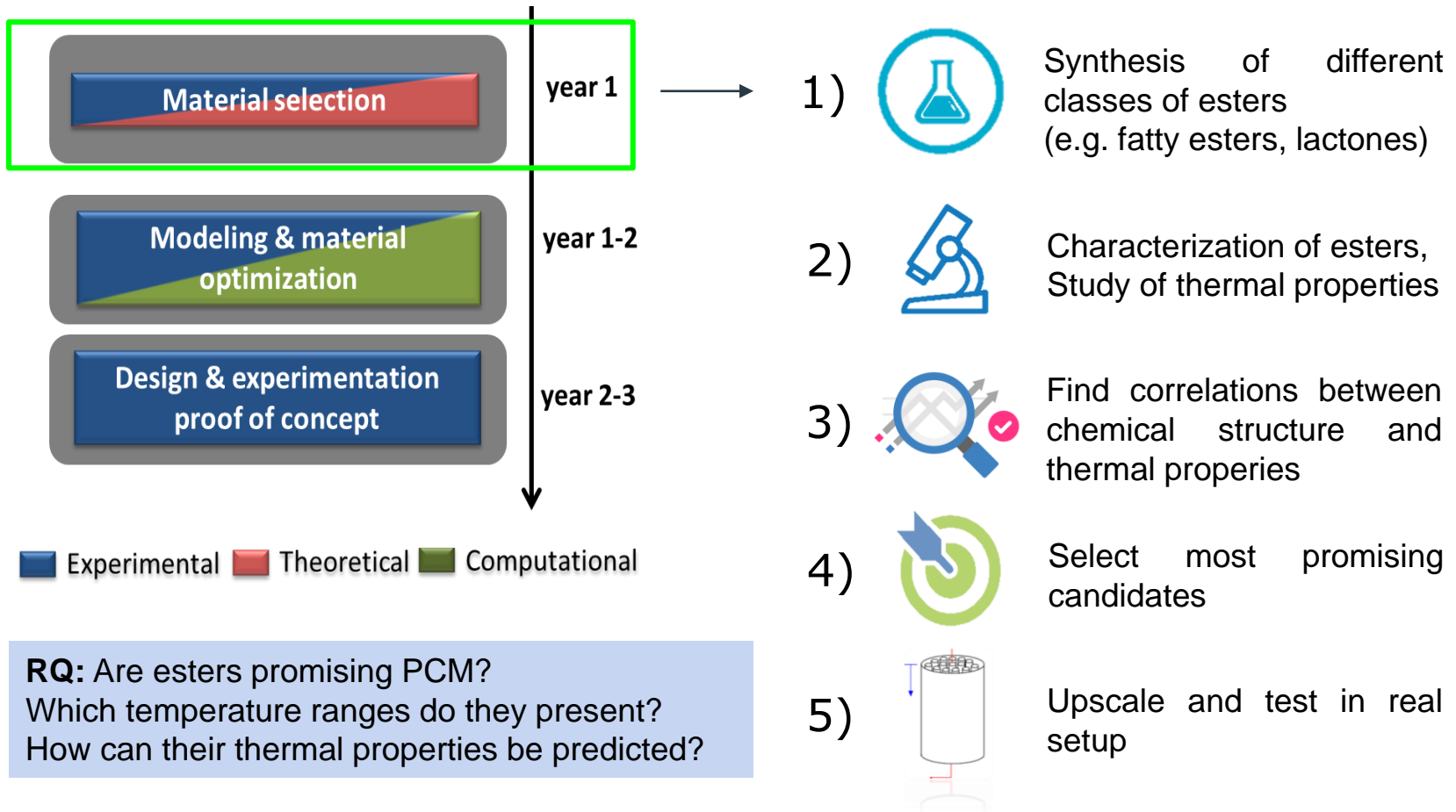


# Synthesis and Characterization of carboxylic Esters as novel PCM for LHS Applications

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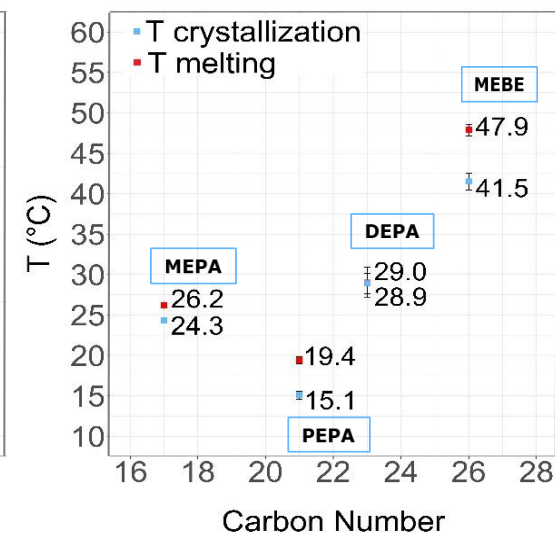
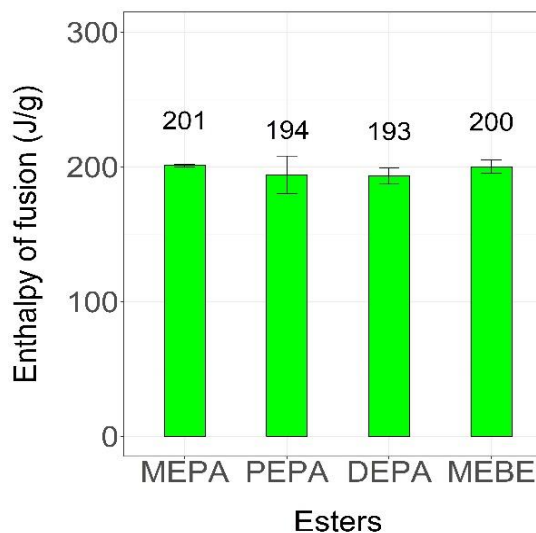
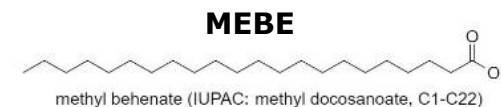
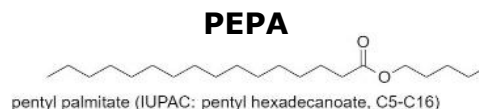
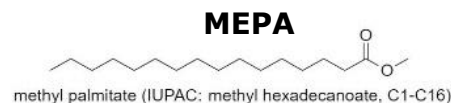
# Goals and Milestones



# Preliminary Results

## Method

- Low commercial availability, esters synthesized through Fischer Esterification and purified at HSLU
- Esters analyzed by class (fatty esters, lactones, diesters, tryglicerides)
- Thermal analysis performed through DSC and TGA
- Selection of most promising PCM candidates based on their cost and thermal performance.
- Identification of trends between PCM thermal properties and chemical structure



**Publications:** Ravotti, R.; Fellmann, O.; Lardon, N.; Fischer, L.J.; Stamatiou, A.; Wortlischek, J. Synthesis and Investigation of Thermal Properties of Highly Pure Carboxylic Fatty Esters to Be Used as PCM. *Appl. Sci.* **2018**, *8*, 1069, doi: 10.3390/app8071069

**Key result:** Fatty esters have been identified as promising PCM for temperature applications in the range between 10 – 50°C. Trends between chemical structure and thermal properties have been found, suggesting the potential of predicting tools.



## Summary: The project on one slide



## Acknowledgments



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