

Kassahun Tadesse Megra

PhD candidate in Engineering and Information Technologies

Supervisors: Dr. Saranprabhu Mani Kala
Prof. Luisa F. Cabeza

Research group: GREiA (UdL)

Research topic and interests

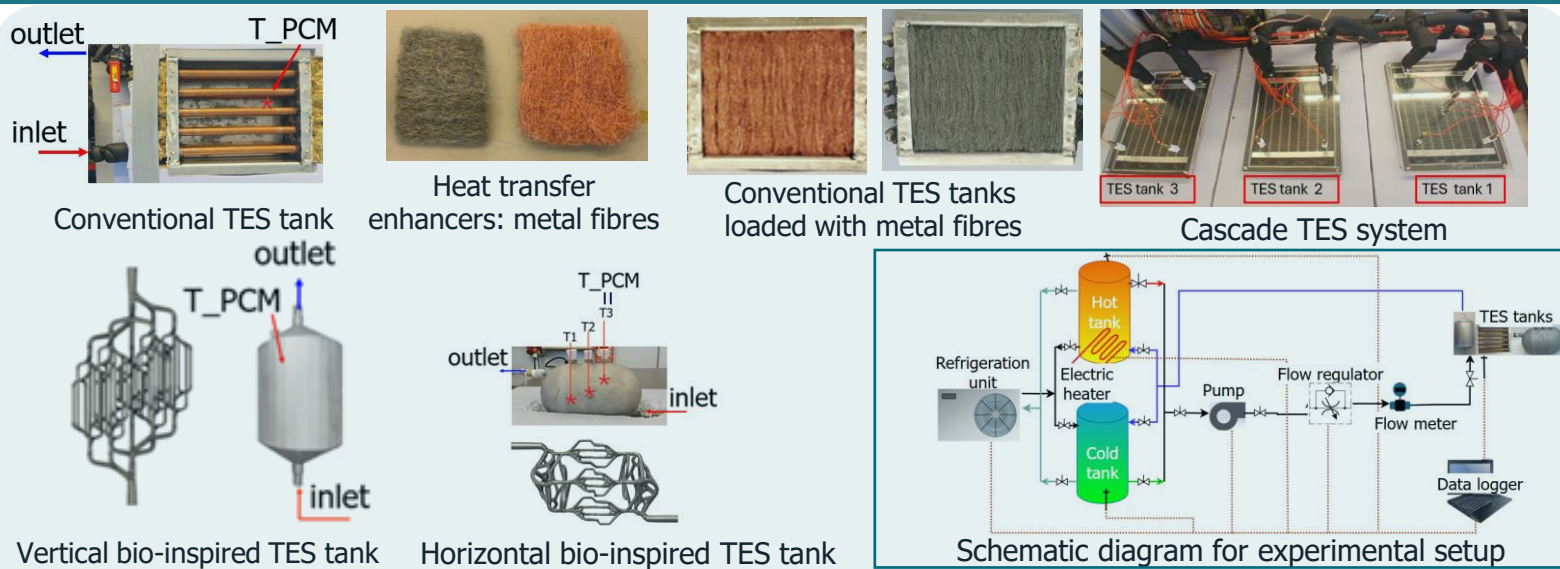


My research focuses on the experimental investigation of thermal energy storage (TES) tanks using phase change materials (PCMs). The research explores and addresses methods to enhance thermal performance of TES systems by using various mechanisms:

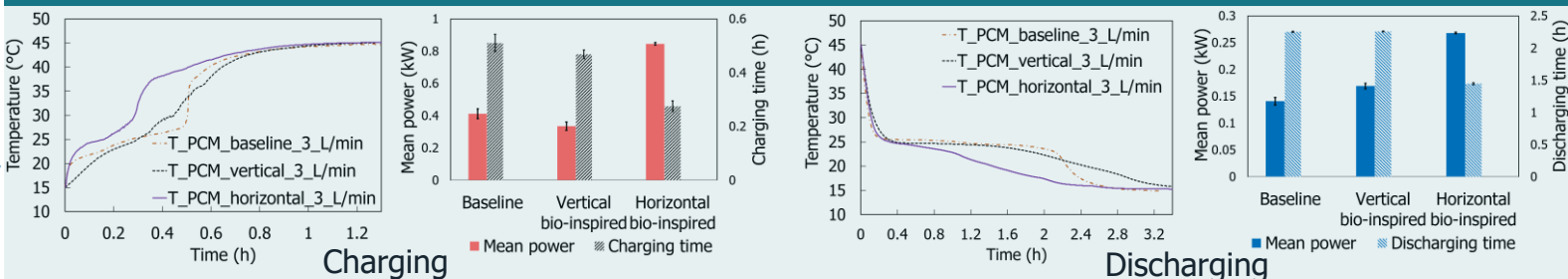
- Adding metal fibres to increase thermal conductivity of PCMs
- Applying principles of biomimicry in developing TES tanks
- Development of novel cascade systems

My broader research interests include, Heating, Ventilation, and Air Conditioning (HVAC), Computational Fluid Dynamics (CFD), renewable energy system modelling, energy efficiency and optimization, building energy performance, and sustainable energy systems.

Current work



Some results



Main expertise and capabilities

- Experimental studies of thermal energy storage tanks: charge and discharge performance studies
- Thermal conductivity tests in climatic chambers
- Installation of experimental setups
- Data analysis and interpretation
- Laboratory management

Some achievements

- Participated in several conferences including Eurotherm #119 (2026), 14CNIT (2025), Euroson (2026), 43rd UIT (2026), and SolarPACES (2026).
- Project participation in HYBRIDplus, RedTES, DECATES and SUSHEAT projects.
- Participated in TES2025 and TES2026 summer schools.

Acknowledgments

This work was partially funded by Ministerio de Ciencia, Innovación y Universidades - Agencia Estatal de Investigación (AEI) (RED2024-153629-T). Luisa F. Cabeza is Serra Hünter Fellow, ascribed to the Serra Hünter Programme, programme funded by the Government of Catalunya. This work is also partially supported by ICREA under the ICREA Academia programme. The authors would like to thank the Departament de Recerca i Universitats of the Catalan Government for the quality accreditation given to their research group (2021 SGR 01615). GREiA is certified agent TECNIO in the category of technology developers from the Government of Catalonia.