

Master-Thesis: Simulation of a Thermo-Chemical Energy Storage System



AEE INTEC

AEE – Institute for Sustainable Technologies (AEE INTEC) is an independent research association which was founded in 1988. Currently over 60 employees from 8 different nations are working at AEE INTEC. Furthermore, the institute regularly awards dissertations, master theses and internships. The activities of AEE INTEC include:

- fundamental as well as applied research
- national and international R&D projects
- cooperation with universities, technical colleges, other research facilities and industry

The three major departments of AEE INTEC are “Thermal Energy Technologies and Hybrid Systems”, “Buildings and Renovation” as well as “Industrial Processes and Energy Systems”.

Research Project

The EU-project CREATE (<http://www.createproject.eu>) is dedicated to the development of a thermal energy storage with high energy density for the heating demands of a one-family house. A seasonal thermochemical storage is charged in summer with solar heat, to be released in winter to provide space heating and domestic hot water. The developed storage system will be installed in a designated house and monitored for an entire heating period.

The open vacancy is dedicated to the numerical simulation of the thermochemical storage system. At a first stage, a simple modeling of the storage will reveal important insights for the dimensioning of the system for the given loads. The simulation will serve primarily to optimize the system but also to understand better its dynamics. The modeling depth will be refined along the optimization process.

Outline of the Master-Thesis

- Simulation of the storage system and interpretation of the results
- Evaluation of the modeling depth for the respective application
- Optimization of thermal storage system for space heating and domestic hot water in buildings
- Summarizing the activities, methods and insights in an academic thesis (master-thesis)

We expect...

- Solution-focused, autonomous and motivated attitude to work
- Knowledge in the fields of thermal engineering and numerical simulation
- Interest in numerical studies of sustainable technologies

We offer...

- Salaried position with a master-thesis embedded in a current international research-project
- Supervision by experienced researchers and highly qualified technical support
- *Period:* Starting now, lasting for 6 months
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