

Thermal energy simulation

Learning objectives

In this seminar the participant learns the most important physical phenomena of (hot water) storage. Furthermore, he can model the phenomena and knows its specific characteristics. He is able to create simple models on a computer or to use professional software. He can classify, interpret and evaluate simulation results.

For systemic consideration of storage he gets an initial insight into the latest research results.

Contents

- Introduction and overview into thermal energy simulation based on the example of thermal energy building simulation and thermal energy plant simulation
- Activation of the mathematical and physical foundations of thermal energy simulation
- In-depth consideration of the modelling and system equations of thermal energy simulation based on a selected task or a special theme to be examined in-depth
- Presentation of simulation methods and simulation environments /simulation programs for the selected task
- Simulation examples and exercises incl. testing and evaluation of simulation models and simulation results
- Processing of a project / an issue of thermal energy simulation

Methodology

Seminar

Literature

- [1] Khartchenko, N.V.: Thermische Solaranlagen, Springer (1995)
- [2] Duffie / Beckman: Solar engineering for thermal processes, Wiley (2006)
- [3] Urbaneck, Thorsten: Kältespeicher, Oldenbourg (2012)
- [4] Klein/Hughes/Kuhn: Mathematical Reference (TRNSYS 17, Vol 4), Solar Energy Laboratory, Wisc. USA