Università degli Studi di Udine

Dottorato di Ricerca in Scienze dell'Ingegneria Energetica e Ambientale

Seminari del Corso di Dottorato

Enable technologies for efficient latent Thermal Energy Storages: a research path

Prof. Simone Mancin

Department of Management and Engineering, University of Padova
Website: https://www.fondazionefenice.it/simone-mancin/

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Abstract: The interest in Phase Change Materials (PCMs) is continuously growing, as they have been identified as a promising solution to accelerate the energy transition when used in Latent Thermal Energy Storage (LTES) systems. Many PCMs are available on the market; however, nearly all present several potential issues that limit the efficiency and practicality of their use in high-performance LTES. This lecture aims to provide a fresh perspective on how a new research path can unlock the potential for developing efficient and cost-effective modular LTES. The research activities of the Thermal Energy Innovation (TEI) research group (www.teiresearch.com) will take you from fundamental studies on a few grams of PCM to the experimental evaluation of a 500 kg commercial storage system. Join us on a scientific journey to showcase the power of an interdisciplinary approach in solving complex problems and developing efficient, smart, and affordable technologies!

CV: Simone Mancin graduated with distinction in Mechanical Engineering at the University of Padova (2005) where he also received the PhD on Industrial Engineering (2009). He is Associate Professor at the Dept. of Management and Engineering of the University of Padova, where he teaches Applied Physics, Thermo-Fluid Dynamics, and Thermal Management of Electronic Devices. His research activities are mainly focused on the experimental and numerical analyses of latent thermal energy storages from a few grams to tons to develop innovative, smart, efficient, and compact solutions for the deployment of TES technologies in refrigeration and air conditioning, and electronics cooling applications. He is author or co-author of more than 250 scientific papers mostly published in international scientific journals and he serves as associate editor of Journal of Energy Storage, Thermal Science and Engineering Process, HEDH, and Part C: Journal of Mechanical Engineering Science. He is in the editorial board of Int. Journal of Thermofluids.