Università degli Studi di Napoli Federico II

Scuola Politecnica e delle Scienze di Base

Dipartimento di Ingegneria Industriale

Invited Lecture

An Overview of Research Activities in Buildings Systems Engineering at the University of Colorado

Prof. Gregor P. Henze
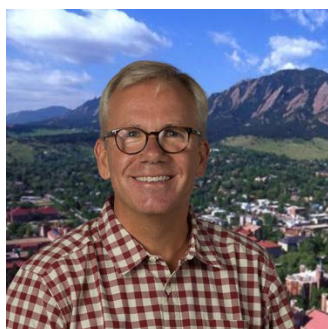**University of Colorado Boulder, USA**

Thursday, October 4th 2018, 15:00 – 17:00
Aula Bobbio, 1st floor, P.le Tecchio 80, 80125 - Naples

Outline

The lecture will focus on the following topics:

- 5th generation district energy systems (ambient loops)
- Human presence detection
- Multi-objective deep reinforcement learning control
- Energy analytics and decision support
- Whole-building fault detection and diagnosis
- Real-time MPC of building energy systems and thermal mass
- Building-to-grid integration of building energy system operations with the electric grid system
- Evaluation of the value load flexibility (end-to-end modelling)

Professor Gregor P. Henze, Ph.D., P.E.
Professor and C.V. Schelke Chair | University of Colorado
Associate Director | Renewable and Sustainable Energy Institute
Joint Professor | National Renewable Energy Laboratory

Biography

Gregor P. Henze is professor and endowed C.V. Schelke Chair at the University of Colorado, where his teaching focuses on the building energy systems side of architectural engineering, i.e., thermal environmental engineering, building mechanical systems design, building control and automation systems, data science for building engineering applications, and sustainable building design. His research emphasizes model-based predictive optimal control and model-free reinforcement learning control of building energy systems and building thermal mass, model-based benchmarking of building operational performance, whole-building fault detection and diagnosis, control strategies for mixed-mode buildings that incorporate both natural and mechanical ventilation, uncertainty quantification of occupant behavior and its impact, energy analytics and decision analysis as well as the integration of building energy system operations with the electric grid system. Prof. Henze is a professional mechanical engineer, certified high-performance building design professional (HBDP), member of ASHRAE, editorial board member for Journal Building Performance Simulation, associate editor for ASCE Journal of Architectural Engineering and for IEEE Control Systems Letters (L-CSS), Associate Director of the Renewable and Sustainable Energy Institute, joint professor at the National Renewable Energy Laboratory as well as co-founder and chief scientist of QCoefficient, Inc.

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