

AIT/IEEE PES Austria Chapter Lecture Series

ENERGY SYSTEMS MODELLING AND SIMULATION: CHALLENGES AND OPPORTUNITIES

Andrea Benigni, Professor, [Forschungszentrum Jülich](#) and [RWTH Aachen University](#), Germany

Thursday, 11. November 2021, 16:00 - 17:00 (online)

Registration

Participation is free but [registration](#) is required! Login information for joining the online event will be provided right before the event starts!

Abstract

In his lecture, Prof. Dr. Benigni will highlight the needs and challenges related to the simulation of modern energy systems and present some of the solutions proposed by IEK-10 of Forschungszentrum Jülich. Decarbonization is one of the major goals for our economy. This is to be achieved through the use of renewable energies as well as an increase in energy efficiency with simultaneous integration of the various energy infrastructures. This results in increased coupling of e.g. electricity, gas, and heat networks using different conversion technologies, flexibility options, and storage. At the same time, the demands on information and communication systems as well as market designs are increasing. This results in interdependencies that greatly increase the complexity of planning and operation of multi-physical energy systems. Interactions between continuous dynamics on the one hand and discrete events, on the other hand, become more and more relevant due to the increasing number of controllable devices and the use of networked control schemes. These developments also make it necessary to further develop the optimization and simulation methods used as well as the control solutions that are deployed on increasingly powerful computing systems.

About the Speaker

Andrea Benigni (S'09-M'14-SM'20) received the B.Sc. and M.Sc. degrees from Politecnico di Milano, Milano, Italy, in 2005 and 2008, respectively, and the Ph.D. degree from RWTH-Aachen University, Aachen, Germany, in 2013. From 2014 to 2019, he was an Assistant Professor with the Department of Electrical Engineering, University of South Carolina, Columbia, SC, USA. In 2019 he joined RWTH-Aachen as Professor of "Methods for Simulating Energy Systems" and FZ-Julich as director of the institute for "Energy Systems Engineering (IEK-10)". Dr. Benigni focuses on the development of methods and software tools for the planning, design, and control of modern energy systems.

Organizers

This event is jointly organized by the [IEEE PES Chapter Austria](#), the [IEEE IAS/PELS/IES Joint Chapter Austria](#), and the [AIT Austrian Institute of Technology - Center for Energy](#).

Location Webinar (online)

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