

The Road Ahead: Electric Vehicles, Smart Homes and Grids

Dr. Dan M. Ionel

IEEE Fellow

EE Professor & L. Stanley

**Chair in Power,
University of Kentucky**



Tuesday, April 12, 2022

2:00 – 3:00 p.m. Olin 202

Reception in Olin 204 3:00 – 3:30

Abstract

The presentation will discuss technologies for the ultrafast charging of batteries, including innovative dynamic wireless systems applicable while an electric vehicle (EV) is in full motion. The opportunities for EV to home (V2H) and vehicle to grid (V2G) operation for increased resilience, optimal energy usage, and virtual power plant (VPP) controls will be illustrated through case studies with results from a large-scale open-source co-simulation framework that has been developed for buildings and electric power distribution systems. The presentation will be followed by discussions for which Dr. Ionel will be joined by three of his PhD students: Rosemary, Huangjie, and Donovan.

Biography

Dr. Dan M. Ionel is Professor of Electrical Engineering and the L. Stanley Pigman Chair in Power at University of Kentucky (UK), where he also serves as the Director of the Power and Energy Institute of Kentucky (PEIK) and of the SPARK Laboratory. Before joining UK in 2015, he lived in Milwaukee for almost fifteen years, during which he held technical leadership positions in research and development as Engineering Fellow, Chief Scientist, and Chief Engineer successively with very large companies: AO Smith, Vestas Wind Turbines, and Regal Rexnord and served as an Adjunct Professor with Marquette University. Dr. Ionel is a Fellow of IEEE for which he has been also serving in committee, journal, and conference leadership roles on behalf of the Power and Energy, Industry Applications, Magnetics, and Power Electronics Societies.