

# PUBLIC LECTURE SERIES



## Smart Grid, Renewables, Electric Mobility: Challenges and Potential of an Integrative Approach

Wednesday, November 24, 2010

5:00 – 6:00P

Carl A. Pollock Hall (CPH) 4333

*Complimentary refreshments will be served*

**Presented by the Waterloo Institute for Sustainable Energy**  
University of Waterloo

**Public Lecture with Prof. Dr. Hartmut Schmeck,**  
Karlsruhe Institute of Technology



*Due to the increasing share of power generation from renewable sources we have to cope with the problem that power generation becomes less controllable and less predictable: Wind power plants and solar cells are strongly dependent on weather conditions. Furthermore, the growing number of small decentralized combined heat and power plants may lead to additional problems of unpredictable power generation. Therefore, the traditional paradigm of highly centralized power grids where “supply follows demand” is no longer adequate for guaranteeing a reliable power supply and there is a growing need for more flexibility in power consumption, e.g. in private households or small or medium enterprises. The talk will outline essential challenges of an intelligent energy management coping with these problems. An additional aspect of this scenario is the integration of electric vehicles into the power grid: While uncontrolled recharging processes would lead to unacceptable bottlenecks, an intelligent utilization of the storage capacity of the batteries could significantly contribute to a stabilization of the power grid.*

**Hartmut Schmeck** studied mathematics and computer science at the Universities of Kiel, Germany where he got his Diplom and Ph.D. in Informatics, and Waterloo, Canada. Since 1991 he is a Full Professor of Applied Informatics at the Karlsruhe Institute of Technology - KIT. He is co-author of more than 140 publications on advanced algorithms and architectures and, more recently, on self-organizing adaptive systems. He has been program and conference chair for numerous international workshops and conferences (i.e. RAW, ARCS, IFIP BICC 2006, 2008, ATC 2009, ICAC 2011). He is coordinator of the German priority research program SPP 1183 on “Organic Computing”. At Karlsruhe, he is the Scientific Spokesperson of the KIT-Focus “COMMputation”, addressing the scientific challenges implied by the inherent combination of communication and computation. Furthermore, he is coordinating the participation of eleven cross-disciplinary chairs of the KIT within the collaborative projects MeRegio and MeRegioMobil on ICT concepts for smart grid and electric mobility.

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