

# Illinois Center for Wireless Systems

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## ICWS Seminar Series



### **Making IEEE 802.16 MESH Mode Work**

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Darmstadt, Germany

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3401 Siebel Center

Wireless Mesh Networks allow for the self-organizing formation and organical growth of wireless networks. Possible usage scenarios include public community networks, but also provider-operated wireless backbone networks. To support a rich set of applications and services, various aspects such as QoS-support, security, etc. have to be sufficiently addressed. In this context, the use of IEEE 802.11 is well explored, however, IEEE 802.16 is a different beast. In our talk, we introduce the MESH mode of IEEE 802.16. We explain the missing nuts and bolts to make IEEE 802.16 MESH mode work. In particular we discuss compatibility issues with existing ad hoc routing protocols, shortcomings in the security architecture, and QoS issues to allow for real-time traffic such as voice or video. In our work, we mainly focus on network layer aspects. Since the design of networking protocols for Wireless Mesh Networks - such as routing protocols - largely relies on the characteristics of the wireless medium and on the deployed technology for medium access, our focus is on the design of cross-layer aware solutions to address the aforementioned research challenges.

**Dr. Matthias Hollick** is the head of the Mobile Networking group (MobNet) and the Ubiquitous Communications group (UbiqCom) at the Multimedia Communications Lab (KOM) of Technische Universität Darmstadt, Germany. His research interests are in the area of dependability, security, and quality of service provisioning in communication networks. In particular, the focus of his current work is on self-organizing mechanisms to enable dependable and quality-of-service-aware communication in mobile/wireless ad hoc, mesh, and sensor networks. His research has been supported by research grants from Siemens AG, Corporate Technology, DoCoMo Euro labs, and various public research bodies. Dr. Hollick received his Diploma degree (Dipl.-Ing., M.Sc. equivalent) in electrical engineering in 1998. In 2004 he received his Doctoral degree (Dr.-Ing.) with distinction (summa cum laude) from the Technische Universität Darmstadt. Dr. Hollick is member of the ACM and IEEE and serves in various program committees and editorial boards related to his research area. He is teaching various courses in the domain of wireless/mobile communications at TU Darmstadt and at partner universities. Amongst other activities he acts as an expert for the European Union and reviewer for the German National Science Foundation (DFG). For his research, in 2005, Dr. Hollick has been awarded with the award of the Adolf-Messer Foundation (Adolf-Messer Stiftung), which is endowed with 50,000 EUR.