

 **informatik-Kolloquium**

Der Fachbereich Informatik der Johannes Kepler Universität Linz¹ lädt in Zusammenarbeit mit der Österreichischen Gesellschaft für Informatik (ÖGI) zu folgendem Vortrag ein:

Jun.-Prof. Dr. Hannes Frey
University of Paderborn

**Scalable Routing Algorithms for
Large Scale Wireless Networks**

Fr, 6. 5. 2011, 10:15 Uhr
Johannes Kepler Universität Linz, Raum MT132

Abstract:

Large scale wireless networks like ad hoc, sensor, sensor actuator or robot networks consist of devices which are communicating wireless without using a fixed network infrastructure. Due to limited transmission range, communication between two nodes often requires collaborating intermediate nodes in order to route messages along a path connecting source and destination node. Data communication by message routing gets a challenging task in large scale ad-hoc networks like sensor networks consisting of thousands of nodes. Networks with battery operated nodes have only a limited amount of total energy available. It is thus of great importance that such routing protocols are operating in an energy efficient manner. Moreover, opposed to traditional networks, changes in the network topology - resulting from device mobility or from wireless channel fluctuations - are the rule and not an exceptional case.

This talk will discuss the class of localized routing algorithms which are a significant paradigm shift from traditional routing mechanisms, those based on global message exchange. In such algorithms the decision about the next hop forwarding node is based on information about the current and the nodes in its vicinity only. Maintenance

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Anwendungsorientierte Wissensverarbeitung (FAW), Bioinformatik, Computational Perception, Computergrafik, Computer-Architektur, Formale Modelle und Verifikation, Informationsverarbeitung und Mikroprozessortechnik (FIM), Integrierte Schaltungen, „integriert studieren“, Pervasive Computing, Systemsoftware, Systems Engineering und Automation, Telekooperation

of the routing infrastructure is just limited on local exchange of information with the immediate neighborhood. The local exchange of control messages is thus not depending on the total network size. Moreover, changes in the network topology just require control message exchange with neighbor nodes in the immediate surrounding of that change. From that perspective, such network protocols are arbitrary scalable with respect to the network size.

About the speaker:

Jun.-Prof. Dr. Hannes Frey received his graduate degree in mathematical computer science from the University of Trier, Germany, in November 2001. From the same University he received a PhD degree in Computer science in April 2006. Until April 2008 he was working at the University of Southern Denmark, and until September 2009 at the University of Paderborn. Hannes Frey's research interests are networking algorithms for wireless networks. His research covers routing, topology control, media access control, lower bound analysis, autonomous self-deployment, and localization. He has about 50 publications in those areas. Hannes Frey served as a co-chair for ADHOC-NOW 2009 and 2011, for IQ2S 2010, and for LOCAN and LOCALGOS since 2007. He was a TPC member and external reviewer for more than 30 conferences, including conferences like EWSN, VTC, MASS, CoNext, INFOCOM, and MobiCom. He was a reviewer for more than 20 international journals, for instance serving regularly as a reviewer for IEEE Transactions on Parallel and Distributed Systems and Elsevier Ad Hoc Networks.

Univ. Prof. Dr. Gabriele Kotsis
Research Institute for Integrated Circuits

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