

Einladung des Instituts für Regelungs- und Automatisierungstechnik

**zum GASTVORTRAG am 12.10.2017 um 15:00 Uhr**

im Hörsaal i3 "LENZING Hörsaal", MDEG180G, Inffeldgasse 25/D/EG, 8010 Graz

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Title: **Wireless event-based control**

Lecturer: **Prof. Karl Henrik Johansson**, KTH Royal Institute of Technology, Stockholm, Schweden

### **Abstract:**

There is a growing deployment of wireless networks in industrial and vehicular control systems. Lower installation costs and efficient reconfigurations for wireless devices have a major influence on the future application of distributed control. Traditional sampled-data control is based on periodic sensing and actuation rather than the acting when the system needs attention. Event-based control instead is reactive and generates sensor sampling and control actuation when the plant needs it. In this talk, we will discuss how to design event-based control systems. It will be shown how wireless access scheme can influence the closed-loop performance of the networked control system. Appropriate models for medium access control protocols will be introduced. It will be shown how these protocols can be tuned for various wireless control applications. The talk will be illustrated by several examples from ongoing projects with Swedish industry. The presentation is based on joint work with several collaborators.

### **Biography:**

Karl Henrik Johansson is Director of the Stockholm Strategic Research Area ICT The Next Generation and Professor at the School of Electrical Engineering, KTH Royal Institute of Technology. He received MSc and PhD degrees in Electrical Engineering from Lund University. He has held visiting positions at UC Berkeley, Caltech, NTU, HKUST Institute of Advanced Studies, and NTNU. His research interests are in networked control systems, cyber-physical systems, and applications in transportation, energy, and automation. He is a member of the IEEE Control Systems Society Board of Governors and the European Control Association Council. He has received several best paper awards and other distinctions, including a ten-year Wallenberg Scholar Grant, a Senior Researcher Position with the Swedish Research Council, the Future Research Leader Award from the Swedish Foundation for Strategic Research, and the triennial Young Author Prize from IFAC. He is Fellow of the IEEE and IEEE Distinguished Lecturer.