

# Call for Participation

Date: 30 Oct 2018

Room: U212 - CTJ/JLLE

Time: 9:00

## Software Parallelization in Embedded, Heterogeneous Multi/Manycore Systems

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Many of today's embedded systems, like Automotive powertrain control units, or automated driving assistance systems, require more and more computational power. However, since the processor speed cannot be increased any more, the performance increase is realized by multicore CPUs (up to 16 or more CPUs) or manycore accelerators (GPUs, with hundreds of small processing nodes). However, this is a huge challenge for software developers as most of them are not yet familiar with the specifics of multi/manycore programming. Additionally, such systems typically have real-time requirements, which adds another layer of complexity to the software development. In this talk, Prof. Margull will describe some of the problems in detail and show possible solutions and their limitations. The work presented here is part of FORMUS<sup>3</sup>IC, a joined research project with partners from industry (Airbus, AUDI, Continental, Infineon, and others) as well as universities (FAU Erlangen, OTH Regensburg, TH Ingolstadt, and others). Link: <http://www.formus3ic.de>



Ulrich Margull is Professor at the Technical University of Applied Sciences Ingolstadt,

Department of Electric Engineering and Computer Science. He got his PhD in Physics in 1996 at the University of Regensburg. After working in the Automotive Industry for several years, he became Professor in Ingolstadt in 2012, where he teaches software engineering and development of embedded, real-time and safety-critical systems. In his research, he is mainly engaged in real-time scheduling and parallelization of software for embedded computer systems, with more than 20 publications in journals or conferences. He is a member of the executive committee of the PARS (Parallel-Algorithmen, -Rechnerstrukturen und -Systemsoftware) section of German Informatics Society (GI), as well as program committee member for several conferences. In his research activity, he has collaborated with companies from the Automotive or Avionics industry sector, like Continental, AUDI, Airbus, Infineon, and some smaller Bavarian companies.

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