

# informatik-Kolloquium

Der Fachbereich Informatik der Johannes Kepler Universität Linz<sup>1</sup> lädt in Zusammenarbeit mit der Österreichischen Gesellschaft für Informatik (ÖGI) zu folgendem Vortrag ein:

Topic: Microfluidics and Biological Instrument Design as a Computing Discipline:  
An Overview

Presenter: **Ass.-Prof. Dr. Philip Brisk**  
Dep. of Computer Science and Engineering, University of California, USA

Datum: **Tuesday, May 16<sup>th</sup> 2017, 10:15**

Location: **Johannes Kepler University Linz, HF 9905 (Hochschulfondsgebäude)**

## Abstract:

The emerging field of microfluidics and Lab-on-a-Chip technology shares many principle similarities with the early days of the semiconductor industry; one key difference is that even after 20 years of progress, there are many competing microfluidic technologies, whereas, the integrated silicon transistor has dominated the semiconductor industry for the past 50 years. Regardless of which microfluidic technologies remain prevalent, there is an unquestioned need for software automation, ranging from microfluidic design tools to domain-specific programming languages and compilers.

- This talk will review several recent and ongoing efforts to adapt best practices from the semiconductor and software industry to microfluidics;
- A domain-specific programming language and compiler for droplet-based electrowetting microfluidic chips;
- Computer-aided design tools targeting passive continuous flow-based microfluidic devices;
- Computer-aided design tools targeting active continuous flow-based microfluidic devices based on integrated microvalves;
- Computer-aided design tools targeting paper microfluidic devices based on passive-flow substrates; and
- Multidisciplinary Evolutionary Components (MECs), which can be rapidly snapped together to assemble milli-fluidic scale biological instruments.

## Short Bio:

Philip Brisk received his Ph.D. in Computer Science from UCLA in 2006. From 2006-2009, he worked as a postdoc at EPFL in Lausanne, Switzerland. In 2009, he started his current position at the University of California, Riverside — approx. 100 km east of Los Angeles — where he was promoted to Associate Professor with Tenure in 2015. His research interests include Computer Architecture, VLSI/CAD, FPGAs and Reconfigurable Computing, and today's topic: Programmable Microfluidics

*Einladender: Univ.-Prof. Dr. Robert Wille  
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<sup>1</sup> Der Fachbereich (<http://informatik.jku.at>) besteht aus folgenden Instituten:  
Application Oriented Knowledge Processing (FAW), Bioinformatics, Computational Perception, Computer Architecture, Applied Systems Research and Statistics, Computer Graphics, Formal Models and Verification, Networks and Security, Integrated Circuits, Pervasive Computing, Software Systems Engineering, System Software, Telecooperation, Signal Processing