

## Second International Workshop on

# New Frontiers in High-performance and Hardware-aware Computing (HipHaC'11)

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### Links:

Workshop Website  
<http://www.hiphac.org/>

Conference Website  
<http://www.hpcaconf.org/hpca17/>

to be held in conjunction with the  
**17th IEEE International Symposium  
on High-Performance Computer Architecture  
(HPCA-17)**

February 13, 2011  
San Antonio, Texas, USA

## Workshop Program

### Opening Session

08:30 Welcome, Introduction & Overview

### Session I: Processor Concepts and Emerging Architectures

08:40 Convey HC-1 Hybrid Core Computer – The Potential of FPGAs in Numerical Simulation  
*Werner Augustin, Jan-Philipp Weiß, and Vincent Heuveline  
Karlsruhe Institute of Technology*

09:00 Optimized Replacement in the Configuration Layers of the Grid Alu Processor  
*Ralf Jahr<sup>1</sup>, Basher Shehan<sup>1</sup>, Sascha Uhrig<sup>2</sup>, and Theo Ungerer<sup>1</sup>  
<sup>1</sup>Univ. Augsburg, <sup>2</sup>TU Dortmund*

### Session II: Modelling of Data Traffic and Memory Behavior

09:20 Traffic Prediction for NoCs using Fuzzy Logic  
*Gervin Thomas<sup>1</sup>, Ben Juurlink<sup>1</sup>, and Dietmar Tutsch<sup>2</sup>  
<sup>1</sup>TU Berlin, <sup>2</sup>Bergische Univ. Wuppertal*

09:40 Impact of Data Sharing on CMP design: A study based on Analytical Modeling  
*Anil Krishna, Ahmad Samih, and Yan Solihin  
North Carolina State University*

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### Coffee Break (10:00-10:30)

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### Session III: Algorithmic Aspects and Performance Evaluation

10:30 Performance Engineering of an Orthogonal Matching Pursuit Algorithm for Sparse Representation of Signals on Different Architectures  
*Markus Stürmer<sup>1</sup>, Florian Rathgeber<sup>2</sup>, and Harald Köstler<sup>1</sup>  
<sup>1</sup>Univ. Erlangen-Nürnberg, <sup>2</sup>Imperial College London*

10:50 GPU Acceleration of the Assembly Process in Isogeometric Analysis  
*Nathan Collier<sup>1</sup>, Hyoseop Lee<sup>2</sup>, Aron Ahmadi<sup>1</sup>, Craig C. Douglas<sup>2</sup>, and Victor M. Calo<sup>1</sup>  
<sup>1</sup>King Abdullah Univ. of Science and Technology Thuwal, <sup>2</sup>Univ. of Wyoming*

11:10 GPU Accelerated Scientific Computing: Evaluation of the NVIDIA Fermi Architecture; Elementary Kernels and Linear Solvers  
*Hartwig Anzt, Tobias Hahn, Björn Rocker, and Vincent Heuveline  
Karlsruhe Institute of Technology*

### Closing Session

11:30 Future Directions in the Manycore Era  
*Open Discussion*

11:45 Wrap-up and Closing