

# **1st BRAZILIAN GERMAN WORKSHOP ON MICRO- AND NANO-ELECTRONICS**

**Porto Alegre, BRAZIL    October 06-08, 2010**

WORKSHOP PROGRAM

**Day 1, October 6th**

**18h00 : Opening.**

**Workshop Hosts:** Carlos Alexandre Netto , UFRGS University Rector

João E. Schmidt, Pro-Rector of Research

**Address by the Workshop Organizers:**

Juergen Becker, Vice-Rector for Studies, Karlsruhe Institute of Technology (Germany)

Ricardo Reis, Coordinator, UFRGS Graduate Program on Microelectronics (Brazil)

**Day 2, October 7<sup>th</sup>**

**Venue: Informatics Institute - Federal University of Rio Grande do Sul**

**New Auditorium – Building 67 - Campus do Vale    City: Porto Alegre, BR**

**08h30 – 09h00 Registration**

**09h00 - 09h50 Keynote 1: “The NAMITEC Network for Micro and Nano-Electronics Research and Development in Brazil”**

Jacobus Swart - Center for Informatics, Director & Coordinator, Nano-Micro-Electronics Technologies Network of Centers of Excellence – NAMITEC, Brazil

**09h50 - 10h40 Keynote 2: “Nano-Electronics Frontiers. A Research Agenda for Global Collaboration”**

Manfred Glesner – Technical Univ. of Darmstadt (Emeritus Prof.), Germany

**10h40 – 11h00 BREAK**

**11h00 – 12h20 Session 1 Nano-Devices**

**Hopping Conduction in Carbon Nanotubes and Graphene Nanolayers**

Antônio Eudócio Pozo de Mattos; Henri I. Boudinov, (Physics Institute - UFRGS, BR)

**Zinc Oxide Nanowires Semiconductors for Nanosensing Applications**

A. L. F. Cauduro, G. C. Pesenti, J. W. L. Oliveira, F. C. Zawislak, H. I. Boudinov (UFRGS, BR) and D. L. Baptista (INMETRO & UFRGS, BR)

### **Adaptronics, Sensor Networks, Health Monitoring and Smart Grids**

Francois Philipp (Technical Univ. of Darmstadt)

### **12h20 – 14h00 LUNCH BREAK**

### **14h00 – 15h40 Session 2 : Modeling, Reconfiguration, Verification, Physical Design**

#### **Model Driven Engineering of Real Time and Embedded Systems**

Marcio F. S. Oliveira<sup>1,2</sup>, Marco Aurelio Wehrmeister (UDESC, BR), Carlos E. Pereira, Flavio Wagner (UFRGS, BR), Franz Rammig (Univ. of Paderborn, GER)

#### **Use of Partial Dynamic Reconfiguration for Fault-Tolerance Processor Design**

Monica Magalhães Pereira (UFRGS, BR), Lars Braun, Michael Hübner, Jürgen Becker, (Karlsruhe Institute of Technology, GER), Luigi Carro (UFRGS, BR)

#### **Functional Verification and Challenges**

S. N. Pagliarini, F. L. Kastensmidt ( Graduate Program on Microelectronics - UFRGS, BR)

#### **Non-Intrusive Hybrid Signature-Based Technique to Detect SEU and SET Faults in Microprocessors**

José Rodrigo Azambuja, Fernando Sousa, Lucas Rosa, Fernanda Lima Kastensmidt (PGMICRO, PPGC, UFRGS)

#### **Design Automation of Transistor Networks**

Ricardo Reis (UFRGS, BR)

### **15h40 – 16h00 BREAK**

### **16h00 – 17h40 Session 3 : Micro-Sensors and Nanofabrication**

#### **Multiple Position Sensitive Photo Detector**

E.L. de Souza, G.C. Pesenti, H. Boudinov and R.R.B. Correia (Physics Institute – UFRGS, BR)

#### **Design and fabrication of micro-reactors for the characterization of pressure sensors based on pristine carbon nanotubes**

*R. Savu, A. Flacker, (CCS, Unicamp), N. A. de Carvalho, E. Joanni, M. T. Biasoli, E. A. Santos, A. L. P. Rotodaro (CTI, BR), T., A. L. Gobbi (LNLS, BR), and S. A. Moshkalev (CCS, Unicamp)*

**Physico-Chemical properties of Al<sub>2</sub>O<sub>3</sub> films deposited on Ge substrates by sputtering.**

N.M. Bom, S.R.M. da Silva, M. Dalponte, C. Krug, G.V. Soares, and C. Radtke (UFRGS, BR)

**Deep levels fine structure in proton implanted *p-type* GaAs**

M. C. Adam, A. V. P. Coelho, and H. Boudinov (Physics Institute, UFRGS, BR)

***X-Ray Radiation Effects in Overlapping Circular-Gate MOSFET's***

*K. H. Cirne<sup>1,2</sup>, M. A. G. Silveira<sup>2,3</sup>, J. A. De Lima<sup>1</sup>, N. H. Medina<sup>4</sup> and S. P. Gimenez<sup>2</sup>  
1 (CTI Design House, BR), 2 (FEI Univ. Center, BR), 3 (FEI Univ. Center Physics, BR),  
4 (IF – Univ. Sao Paulo, BR)*

**DAY 3 October 08<sup>th</sup>, 2010**

**09h00 – Keynote 3 : “ Directions of Programming Research: Seeking a Needle in the Haystack? “**

Reiner Hartenstein Univ. of Kaiserslautern, Germany

**10h00 - 10h40 Session 4 System-on-Chip Design**

**A System-on-Chip Design and FPGA Implementation for SBTVD Set-top Box**

André Borin, Alessandro Bonatto, Alonso Schmidt, Adriano Renner, Altamiro Susin (PGMICRO & DELET, UFRGS, BR)

**Distributed Simulation for Reconfigurable SoC based Sensor Networks**

Oliver Sander (KIT, GER), Alisson Brito (Federal Univ. Paraíba, BR), Matthias Kühnle, Christoph Roth, Jürgen Becker (Karlsruhe Institute of Technology - KIT, GER)

10h40 – 11h00 BREAK

**11h00- 12h00 Session 5 Systems Design**

**Technology for Integrated programming and Cross-layer Reconfiguration for Water Management**

Achim Rettberg, Ina Podolski (Univ. Oldenburg, GER), Marcelo Götz, Carlos E. Pereira (DELET - UFRGS, BR)

**Sustainable Infrastructure for Remote Areas**

Achim Rettberg<sup>1</sup>, Marcelo Götz<sup>2</sup>, Ina Podolski<sup>1</sup>, Franz Rammig<sup>3</sup>, Carlos E. Pereira<sup>2</sup>

- 1 *Carl von Ossietzky University Oldenburg, Germany*
- 2 *Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, Brazil*
- 3 *University Paderborn, Germany*

### **BRICK: A Parametric Multi-Context Expression Grain Reconfigurable Architecture**

Juan Fernando Eusse (Univ. los Andes – Colombia), Michael Hübner (KIT, GER), Ricardo Jacobi (UnB, BR)

### **12h00 – 14h00 LUNCH BREAK**

### **14h00-14h50 Keynote 4 : “ Overview of the Cooperation Between UFRGS and German Universities in Microelectronics and Embedded Systems”**

Flavio R. Wagner , Director , Informatics Institute , UFRGS , Brazil

### **Session 6 14h50 – 15h30 Power-Performance Evaluation**

#### **Evaluating Performance and Power Consumption of Floating-point Arithmetic Operators**

Daniel M. Muñoz, Carlos H. Llanos, Mauricio Ayala-Rincón (UnB, BR), Diana Göhringer (Fraunhofer IOSB, GER), Jürgen Becker, Michael Hübner (Karlsruhe Inst. of Technology, GER)

#### **Evaluating Performance, Power Consumption and Resource Utilization of Hardware/Software implementations of Artificial Neural Networks**

André L.S. Braga, Carlos H. Llanos, Mauricio Ayala-Rincón (University of Brasilia – UnB, BR), Diana Göhringer, Jonathan Obie (Fraunhofer IOSB, GER), Jürgen Becker, Michael Hübner (Institut für Technik der Informationsverarbeitung – ITIV, Karlsruhe Institute of Technology – KIT, GER)

### **15h30 – 16h00 BREAK**

### **16h00 - 17h00 PANEL DISCUSSION**

Brazil-Germany Collaboration on Nanotechnologies, Microelectronics and Systems Design

### **17h00 – Workshop Adjourns**