Information Technology and Bionics
Symposium in Memory of Tamás Roska
23–24 June 2015

Faculty of Information Technology and Bionics
Pázmány Péter Catholic University
50/a, Práter utca, 1083 Budapest, Hungary

– Program –
Tuesday, 23 June 2015

10:00  Opening Speech

Tamás Roska’s Memories – Chair: Árpád Csurgay

10:20  Ágoston Szél: A Wonderful Journey
10:30  Marco Gilli: A Long Term Collaboration in Circuit Theory and Applications Between Hungarian Academy of Science, PPCU and Politecnico di Torino
10:50  Ferenc Friedler: 25 Years of Success of the IT Engineering Program Established by Tamás Roska
11:10  Péter Szolgay: Tamás Roska Multidisciplinary Doctoral School of Sciences and Technology

11:20  Coffee Break

11:40  Life of Tamás Roska in Pictures
11:50  István Bársony: Memories about Tamás
12:10  Csaba Rekeczky: Wave Computing on Silicon: Early Experiments and Long-Term Vision
12:30  Árpád Csurgay: Educating Engineers for Nature Inspired Human-Centered Information Technologies and Bionics

12:50  Lunch

Cellular Nonlinear Networks and Visual Computing – Chair: Fernando Corinto

13:40  Leon Chua: Everything You Want to Know About Memristors but Are Afraid to Ask
14:00  Wolfgang Porod: CNN: Cellular Nanoscale Networks
14:20  Fernando Corinto: Memristor-Based Platforms for Pattern Recognition: from Nano-Device to Bio-Inspired Algorithms
14:40  István Kollár: Digital Simulation of a Chaotic System
15:00  Radu Dogaru: High Productivity Cellular Neural Network Implementation on GPUs Using Python
15:20  Zoltán Kató: Sensing the 3D World from 2D Images: Mobile Visual Computations

15:40  Coffee Break

Kilo- and Mega-Processor Architectures and Their Applications – Chair: Ákos Zarándy

16:00  Mустак Yalçın: Randomly Reconfigurable Processor Population
16:20  Ákos Zarándy: Sense-And-Avoid Algorithms for UAVs and their Implementation on Many-Core Architectures
16:40  Péter Arató: System Level Synthesis of Heterogeneous Multiprocessing Architectures
17:00  Péter Szolgay: Some Theoretical and Experimental Results on Kilo/Mega-Core Architectures

17:40  Choir of the Faculty: Musical Performance

18:30  Dinner
Wednesday, 24 June 2015

8.30  Holy Mass in Memory of Tamás Roska

9:00  Welcome Coffee Break

Circuit Theory and Applications – Chair: Péter Szolgay

9:20  Ronald Tetzlaff: Real-Time Multivariate Biomedical Signal Processing by Cellular Nonlinear Networks: the Epilepsy Problem
9:40  Josef Nossek: Circuits, Systems, Signal Processing and Professor Roska
10:00 Alon Ascoli: Synchronization in a Simple Network of Hindmarsh Rose Neurons

10:40  Coffee Break

Neuroscience Inspired Bionic Engineering – Chair: Angel Rodriguez-Vazquez

11:00 Angel Rodriguez-Vazquez: Design of Neural Recording Interfaces
11:20 Botond Roska: From Retina to Cortex: The Language of Vision
11:40 Loránd Erős: Role of Invasive Neuromodulation in the Treatment of Neurological Disorders
12:00 József Tar, János Bító: Fixed Point Transformation-Based Adaptive Control of the Hodgkin–Huxley Neuron

12:20  Lunch

Circuit Theory and Applications – Chair: Péter Szolgay

13:00 János Levendovszky: Neural-Based Prediction Algorithms for Electronic Trading
13:20 Katalin M. Hangos, Gábor Szederkényi: Mass Action Kinetic Representations of Biochemical Reaction Networks
13:40 Imre Juhász, Ádám Fekete, Árpád Csurgay: Engineering QED—Quantum Circuits
14:00 Themis Prodromakis: Reliably Unreliable Nano-electronics

14:20  Coffee Break

Bionic Science and Technology – Chair: Gábor Prószyék

14:40 Sándor Pongor: Bacterial Communities as Mobile Sensor Networks
15:00 István Ulbert: Combined Two-Photon Imaging, Electrophysiological and Anatomical Investigation of the Human Neocortex, in Vitro
15:20 Ferenc Vonderviszt: Functionalized Flagellar Nanorods for Biosensing Applications
15:40 Miklós Gyöngy: The Guidance of Tamás Roska in Our Ultrasound Research
16:00 Kristóf Karacs: An Integrated Assistance Tool for Visual Impairment

16:20  Coffee Break

16:40 Gábor Prószyék, Borbála Siklósi, Attila Novák: Processing Ophthalmology Notes
17:00 Dániel Fabó: In Vivo, in Vitro Electrophysiological Analysis of the Human Hippocampus
17:20 Dániel Hillier: A Causal Link between Computation of Motion Direction in Visual Cortex and Retina
17:40 Balázs Rózsa: Multi-Photon Microscopy and New Bionic Research Areas
18:00 Ferenc Kovács, Ádám Balogh: Investigation of Fetal Heart Activity Based on a Complex Phonocardiographic Telemonitoring System
18:20 István Huszár: Kinetics of Exclusion Zone Formation and Nafion-Induced Acidic Transition

19:00  Dinner