

EDITORIAL

Dear Readers,

AUTOMATIKA journal dedicates this issue to the visionary and genius of electrical engineering Nikola Tesla at the occasion of his 150 anniversary.

*AUTOMATIKA journal no. 3-4/2006 in its first section presents four original scientific papers, one preliminary communication and one scientific paper, that were presented at the 18th International Conference ICECom in Dubrovnik, Republic of Croatia, from 12 to 14 October 2005. The Proceedings published 146 papers; the total number of 347 authors and co-authors from 30 countries, dealing with topics such as **antennas, electro-magnetisms and mobile communications, radio-navigations and optoelectronics**. All the papers were presented and printed in the English language, and the Proceedings were also published on CD-ROM.*

*In the first paper: **MIMO Performance Gains – A Signal Processing Point of View**, Michel T. Ivrlač et al. have derived measures which allow to quantify the amount of antenna gain, diversity gain and multiplexing gain of the MIMO system. The second paper: **Genetical Swarm Optimization: an Evolutionary Algorithm for Antenna Design**, Alessandro Gandelli et al. present hybrid algorithm for the optimization of electromagnetic structures. The third paper: **Reduction of the Mutual Coupling Between Two Planar Inverted-F Antennas Working in Close Frequency Bands**, where Aliou Diallo et al. describe the three constructed antennas, derived prototypes and measured results to validate the proposed solutions. The fourth paper: **Ultra Wideband Dipole Antenna Optimization**, where Petr Černý et al. propose the optimized dipole structures, which could be used as filters for forming of transmitted UWB impulse. The fifth paper: **Metamaterial Grounded Planar Bilayers Supporting Leaky Waves: Principles and Applications**, Andrea Alù et al. analyse the main characteristics of anomalous electromagnetic modes with leaky wave and exploit the connection of physical grounds between the two potential applications. The sixth paper: **Education in Antennas, Wave Propagation and Microwaves**, Miloš Mazanek et al. turn their attention to antennas, but the same structure of education process is possible to apply to other »electromagnetic topics«.*

*The second section of this AUTOMATIKA issue incorporates three papers: the first one is an original scientific paper, presented at the international symposium **IEEE International Symposium on Industrial Electronics**, which was held in Dubrovnik in 2005. The second paper is an original scientific paper and the third one is a professional paper, directly submitted to the editors:*

- T. Pribanić, M. Cifrek, S. Peharec: **Simplified Light Plane Determination during Structured Light Scanning**. A method is proposed enabling an easier and faster approach for 3D shape reconstruction, and the system implementation is simplified.*
- M. Maletić, N. Krajačić, H. Matica: **Frequency Response Measurements of Hearing Aids Based on Composed Audio Test Signal**. The paper describes the implementation of composed audio test signal for evaluating electro-acoustic performance of hearing aids.*
- D. Dlaka, M. Kapov: **VoIP/PSTN Networks Planning with Plan VoIP Applications**. The authors have developed the application for the purpose of VoIP/PSTN network planning and analysing. The comparison analysis of the testing measurements and the measurements on the real network, have been carried out.*

In addition to our standard contributions, »Meetings and Events«, »News and Topics«, »Our Authors« in this issue »Computing in Words and Pictures« section reviews PC graphical hardware development: programmable graphic hardware equipment is presented, graphics pipeline system is explained, main characteristics of vertex shaders and fragment shaders are presented as well as couple of examples using Cg programming language.

*Editor-in-chief:
Professor Borivoje RAJKOVIĆ, PhD*