XXI IEEE Student Branches Symposium
on Electronics and Photonics
for Astronomy and High Energy Physics Experiments

25-27 January 2008, WEiTI PW

Participants of the XXI IEEE SB Symposium „Eectronics and Photonics for HEP experiments". From the left, first row: mgr.T.Czarski (PW), dr R;Kossowski (PW), mgr.P.Pucyk (DESY and PW), dr M.Linczuk (PW), prof J.Szabatin (director of ISE PW), prof. R.Romaniuk (PW, Symposium Chair), dr K.Poźniak (PW and CERN), mgr K.Sajna (IPJ), mgr G.Plebański (IPJ); in the second row there are standing Ph.D and M.Sc. students from WUT, MUT, CERN and DESY. Mr M.Smelkowski, Chair of the Organizing Committee is standing behind prof. J.Szabatin.

During the days of 25-27 January 2008 at the Faculty of Electronics and Information Technology, Warsaw University of Technology there was held an annual Symposium of young scientists devoted to the research on photonic and electronic system development for astronomy, space technology, high energy physics experiments and accelerator technology. The Symposium is focused on hardware aspects, programming techniques, component analysis and modeling, sub-system tests and applications. The Symposium is organized two times a year towards the end of January at the FE&IT of WUT and towards the end of May in WILGA Village Resort owned by WUT. The January Symposium gathers each year nearly a hundred of young researchers, mainly Ph.D. students of technical universities working in the relevant European framework research programs in the biggest European (and some from American) laboratories. The May Symposium, which is wider in topical coverage gathers over 300 young researchers, M.Sc. and Ph.D. students from the whole country and from Europe.

The Symposium is organized under the auspices of a number of high national and international organizations: Warsaw University of Technology, Soltan Institute of Nuclear Studies in Swierk, Committee of Electronics and Communications Polish Academy of Sciences, Polish Committee of Optoelectronics Association of Polish Electrical Engineers, Photonics Society of Poland, SPIE-Europe, IEEE Region 8 Student Activities, IEEE Poland Section, IEEE Student Branch of WUT, CERN in Geneva, DESY in Hamburg and CEA in Paris. Symposium Proceedings are printed annually in the USA in a few volumes of the widely recognized editorial series of research and technical books Proceedings of SPIE [www.spie.org]. Some of papers are printed as special issues of research journals. Till now

nearly twenty of such volumes were printed. The volumes of Proc. SPIE are available worldwide through such Internet libraries and bookstores like AIP – American Institute of Physics, SPIEDL – SPIE Digital Library, AMAZON and others. A publication patronage on the Symposium has the Journal Elektronika by Association of Polish Electrical Engineers (SEP). Wider information about the Symposium, and about its next edition on 26.05-01.06.2008 is available on the WILGA Symposium web page http://wilga.ise.pw.edu.pl/.

The Symposium is organized wholly by the young researchers for young researchers. The tutors and mentors are guests. The organizers originate from PERG ELHEP Research Groups of the Institute of Electronics FE&IT WUT and from the IEEE Student Branch of WUT as well as the SPIE Student Chapter of WUT and Student Club of Space Technology. An efficient Chair of January 2008 Symposium was Mr Marcin Smelkowski.

The Symposium program was filled with works combined with realization of such research programs as: PBZ-Optoelectronics, Pi-of-the-sky, CMS-LHC, CARE, EuCARD, XFEL, ILC, FLASH. The program of XXI Symposium embraced over 50 presentations gathered around the following very current and exemplary research areas:

- modeling: practical usage of MatLab environment to build efficient models of components, subassemblies of analyzed systems (control, measurement, data networking, etc.); new DSP algorithms for solving of control, measurement and data acquisition tasks;

- programming: practical usage for fast calculations of DSP class clustered processors like Tiger-Sharc (by AD) and TMS (by TI); task sharing procedures and networked communication between FPGA processors and DSP processor clusters; cooperation between autonomous and internal FPGA hardware DSP processing units; efficiency comparison between GPP processors inside FPGA and autonomous; optimization of task servicing for coupled FPGA-DSP processors by a virtual or a real GPP processor, optimization of address space usage in the biggest versions of FPGA circuits by parameterized object internal interface method; optimization of behavioral description of simple and complex object classes for system construction;

- hardware: new design and construction technologies of complex hardware systems; fast design paths and tools; fast methods of system fabrication, debugging, commissioning and testing; hardware tests in industrial or rugged experimental conditions; scenarios of implementation of new generations of hardware and software, balance questions between system modernization, upgrade and system exchange; when the system modernization or upgrade is not enough?; ruggedness of hardware in HEP, accelerator or space experiment conditions;

prof. R.Romaniuk, Symposium Chair
Warsaw Univ. of Technology