

**XVIII IEEE-SPIE Symposium on Photonics and Web Engineering
Electronics for Accelerators and HEP
WILGA 29 May – 4 June 2006
<http://wilga.ise.pw.edu.pl>**



Photo of participants, IEEE-SPIE WILGA 2006 Symposium (photo taken on 2 June)

The Symposium on Photonics and Web Engineering has been organized since nine years, two times a year alternately, in January at the Faculty of Electronics and Information Technologies, Warsaw University of Technology (Poland) and at the end of May in WILGA Resort owned by Warsaw Univ. of Technology. Two big international Institutes keep patronage over the Symposium, IEEE-The Institute of Electrical and Electronics Engineers (especially Region 8) and SPIE-The International Society for Optical Engineering. In Poland, the Symposium is under the high patronage of Committee of Electronics and Communications, Polish Academy of Sciences, Polish Optoelectronics Committee of the Association of Polish Electrical Engineers and Warsaw University of Technology. Since several years, the Symposium is also under the patronage of two big European nuclear and high energy physics research centers: CERN in Geneva and DESY in Hamburg and European research programs and excellence networks: CARE-Coordinated Accelerated research in Europe, ELAN-European Linear Accelerator Network, ILC-International Linear Collider, TESLA Technology Collaboration. Logos of these institutions are in the header of this report. The host of the Symposium is the PERG/ELHEP Research Group from Institute of Electronic Systems, Warsaw University of Technology (WUT) as well as IEEE Student Branch, IEEE Poland Section. The Patronage Committee of the Symposium consists of leading experts in the Symposium subjects.

The area of interest of the IEEE-SPIE WILGA 2006 Symposium is defined by the work realized by young scientists and engineers, M.Sc. and Ph.D. students at the university faculties of electrical and electronics engineering, information technology, technical physics and mechatronics. Each year has a slightly different topical emphasis. Each year a few clearly visible topical branches can be distinguished. These topics for WILGA 2006 were: superconductive RF technology for accelerators, free electron lasers, optoelectronic technology, optoelectronic materials characterization, optical broadband Internet, optical fiber sensors, optoelectronic measurements, wireless sensory networks, modeling and control of industrial processes, microsystems for measurements in biomedicine and agriculture, biomedical engineering systems, advanced PCB technology, lead-less soldering and packaging technology, RFID, image processing, liquid crystal optical fibers, information safety, intelligent transmission and data processing systems, optical and optoelectronic computing, 3D object imaging, photo acoustics, femtosecond sampling techniques, Bragg grating optical fibers, cluster calculation and decomposition. Special sessions were designed for European FP6 programs: CARE-Coordinated Accelerator Research in Europe, Hand on Universe – Europe, Pi-of-the-sky observations of Gamma Ray Bursts and Optical Flashes.



Students, WILGA 2006 Symposium participants are listening to the opening address by professor Andrzej Pacut – President of IEEE Poland Section.

Among others, the following sessions were of the utmost interest for the IEEE-SPIE WILGA 2006 participants:

- Observations of cosmic GRB flashes and optical companions,
- Advanced photonic and electronic systems for biomedicine,
- Biometry for information protection,
- Photoacoustics and femtosecond pulse techniques,
- Ecological soldering technologies and optoelectronic PCBs,
- Advances in optical fiber technology,
- Optical fiber sensors,
- Liquid crystal optical fibers,
- Optoelectronic artificial neural networks,
- Beam research for free electron lasers,
- Advanced control systems for superconducting accelerators.

Each of these sessions featured a digest paper and a few research communications.

The IEEE-SPIE WILGA 2006 Symposium was attended together by over than 250 participants. There were presented more than 200 contributed research papers and around 20 invited digest papers. WILGA's custom is that particular topical sessions are organized by leading experts in their fields. The experts are representatives of academia, business and industry. This year, the representatives of the following institutions were actively present: Institute of Micro and Optoelectronics WUT, Institute of Electronic Systems WUT, Institute of Control and Computation Engineering WUT, Faculty of Physics WUT, Faculty of Mechatronics WUT, Tele&Radio Research Institute, Soltan Institute of Nuclear Problems, Technical Universities of: Łódź, Wrocław, Rzeszów, Gdańsk, Lublin, Academy of Mining

and Metallurgy (AGH) in Kraków, Military Academy of Technology (WAT) in Warsaw, Poznań, Kielce, Silesian in Gliwice, Białystok, Szczecin, Opole, Warsaw and Universities: Maria Curie-Skłodowska in Lublin, Zielona Góra and Cardinal Stefan Wyszyński in Warsaw. With regret we have noticed the lack of Technical Universities of: Kraków, Częstochowa, Radom, Koszalin and Academy of Technology and Agriculture (ATR) in Bydgoszcz.

The IEEE-SPIE WILGA 2006 Symposium lasted the whole week. The meeting rule is that no parallel sessions are envisaged, neither the poster ones. All work is presented orally in English by young scientists. The presentations are usually subject to long, hot and interesting discussion, run by the students, during the plenary sessions, attended by young participants in large quantities. Peer reviewed proceedings of IEEE-SPIE WILGA 2006 will be traditionally issued by the international series Proceedings of SPIE in USA [www.spie.org]. Chosen papers will be printed in a special issue of ELECTRONICS Monthly, a journal by the Association of Polish Electrical Engineers. This journal has a press patronage over the WILGA Symposium. Some of papers will be published in Electronics and Telecommunications Quarterly by Polish Academy of Sciences and some ISI journals like Optica Applicata, Nuclear Instruments and Methods in Physical Research and others.

The level of presented papers varied during the symposium. It is caused by a unique rule of this meeting allowing for presentation (but not publication) almost finished B.Sc. work, M.Sc. theses and Ph.D. theses at very different stage of completion. It is to be anticipated that the level of presentation of a Ph.D. thesis which was just started is different from that near completion. However, the tutor of a Ph.D. student, who participates in the symposium, may be sure that WILGA is a good school of work presentation in international environment. Additionally, the advanced Ph.D. student has a chance to publish his/her work in renowned proceedings series. All work chosen for publication are peer reviewed.

The IEEE-SPIE WILGA Symposium has no admission fee. The choice of the place is connected with the lowest possible costs of accommodation and food. The costs are even lower because of the support from the IEEE Poland Section, provided for the students IEEE members. The IEEE-SPIE WILGA Symposia have no permanent Scientific Committee. Such a Committee is called during the Symposium out of experts, organizers of topical sessions and university professors attending personally the WILGA meetings. The work presented by students and young researchers are evaluated by their tutors and mentors, by the Scientific Committee, by the auditorium present during the session and finally by the Publication Committee of the WILGA Proceedings. Only the papers presented during the Symposium are published. There are published only the own research work results obtained personally by the students. These are mainly the extended summaries of the M.Sc. and Ph.D. theses.

As is observed from quite long lasting practice, such rules are very convenient for the students and they accept them with large support. A proof of such a support is a large number of students and young researchers participating annually in the IEEE-SPIE WILGA Symposium. WILGA 2006 gathered more than 250 young researchers, while WILGA 2005 did 300 from nearly all Technical Universities all over the country (and a few tens of people from abroad). The essential meaning for young researchers has a reviewed publication in the international proceedings (Proc.SPIE), which is available all over the world. IEEE-SPIE WILGA Symposium is unique in many respects. There are presented each time more than 200 M.Sc. and Ph.D. theses in one place representing uniquely state-of-the-art and evolution of the young science, in photonics, advanced electronics and information technologies, in this country and neighboring regions. Evolution, because the large percentage of young

researchers change each year in WILGA. This stems from the rapid advances of their thesis work done at their alma mater.

The future of WILGA Symposium depends almost totally on young researchers, who would like to meet with the like colleagues on a serious research platform. Partly, the success relies on the tutors and mentor of young researchers, who would want to notice the symposium's high research level. The future practically does not depend on the financial and organizational layers. The Symposium is organized by students volunteers for students, mainly members of IEEE and SPIE Institutes. This makes a large difference with other similar events. During the regular conferences the students events are frequently only an addition to the "adolescent" sessions. On the other hand, typical student workshops are frequently a method of going out of the school with regular lectures. The IEEE-SPIE WILGA symposium narrows all the formalisms to the needed minimum. This minimum is keeping the work at the highest possible level.

There is a large and increasing competition on the market of research conferences. There were organized a considerable number of conferences in the subjects covered by WILGA in this geographical region. Some of them were large, serious and of big research , economical and international impact. Some organizers of these events have quite big ambitions. The competition stems from solid reasons like protection of high level of proceedings, struggle for money, seeking for international programs, normalized points for parametric evaluation of research institutions, etc. WILGA symposium is a difficult competitor in this game, because it does not fight for these privileges, or perhaps seeks for them in a completely different way. Despite this, the organizers of IEEE-SPIE WILGA Symposium feel the pressure from the influential research groups. The pressure stems from the incredible success which WILGA won among young researchers during the last years.

A tradition of WILGA is that a few sessions are started with some humanistic plenary papers. This year, a paper was prepared by professor Tadeusz Morawski on a subtle literary forms which are palindromes. Prof. Morawski is an author of two books on these literary pieces of art. The second paper was delivered by dr R.Kossowski on mathematical approach to ethics and differentiation of weak and strong ethics.

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