

Miscellanea

Working meeting of the managing officers of the Division IV – Technical Sciences with chairmen of the Scientific Committees of the Polish Academy of Sciences – Division IV Technical Sciences

Series of two working meetings were recently held in the Division IV – Technical Sciences devoted to the actual and future problems and activities of the scientific communities centred around the Scientific Committees with the introductory word of the Chairman of the Division IV prof. W. Włosiński.

First meeting was held on March 10, 2005. Professor Włosiński delivered introductory statement in which he indicated all the positive activities which have been developed by the Committees and also pointed out directions which demand more attention. Professor W. Włosiński underlined the significance of the role which the Committees play in the integration of the scientific community. A special emphasis was put on the preparation of the large scientific projects as a joined effort of the several institutes, schools and industrial units. On the Machine Design Committee initiative the Centre of Advanced Technology RIMAM was established, the Electronics and Telecommunication Committee leads the large program integrating many scientific centres, the Material Science Committee prepared program for gradient materials and the Committee has been involved in the Advanced Technology Centre of the group from Zabrze. All these activities were indicated as the example of outstanding achievements in that field.

The Vice-Chairman of the Division IV prof. T. Rychter characterized the activity of the Scientific Committees which was described in the yearly report of the Academy. The financial difficulties were pointed out and the editorial problems of the Scientific Journals edited within the frame of the Division IV were characterized.

Professor W. Włosiński introduced the draft copy of the specification of the priorities in the scientific research areas which should – according to the Division IV opinion – be later respected in selection of any type of the recommendations. This multi-pages material was presented in details and it was the base for farther discussion. The meeting participants had been obliged to deliver in writing proposed corrections to the material introduced.

The problem of the closer relationships with the Ministry of Science and Informatics was also widely discussed. It was decided that next meeting will be held soon, where the final version of the priorities will be approved. It was decided that for the next meeting the one of the leading persons of the Scientific Council of the Ministry of Science

and Informatics will be invited and to be asked to introduce the actual situation (administrative and financial) in Poland.

This second meeting was held a month later. Professor K. Kurzydłowski, one of the leading person in the Ministry, accepted the invitation and made an introductory speech on the problems of interest. He also took part in the extended discussion about the conditions of Polish science in the field of technical sciences.

The working meeting (two parts) was considered as a very valuable one and everybody agreed that this type of meetings should be held in the future.

T. Rychter

Newly elected members of the Polish Academy of Sciences

In November 2004 the election of new members of the Polish Academy of Sciences was performed. The elected members are associated with the Division IV – Technical Sciences of the PAS. They represent two groups of members: Full Members of PAS chosen from actual Corresponding Members of Academy and new Corresponding Members.

Following professors from the group of the Corresponding Members were elected as the Full Members of the Academy:

Professor **Marek DIETRICH**, corresponding member since 1989, active in the field of the machine design fundamentals and biomechanics; Warsaw University of Technology,

Professor **Jacek MARECKI**, corresponding member since 1991, active in the field of the power generation and conversion; Gdańsk University of Technology,

Professor **Zenon MRÓZ**, corresponding member since 1986, active in the field of the mechanics of materials and design fundamentals, Institute of Fundamental Technological Research of PAS.

Newly elected Corresponding Members of the Polish Academy of Sciences are:

Professor **Antoni ROGALSKI**, Institute of Applied Physics, Military University of Technology Warsaw, Poland.

Antoni Rogalski was born in 1946 in Wojdala, Poland. He graduated from the Military University of Technology (MUT) in Warsaw in 1972. In this year he joined the Institute of Applied Physics of the MUT as an assistant.

A. Rogalski received the Ph.D. and Dr.Sc. degrees in 1976 and 1982, respectively, from the Department of Chemistry and Applied Physics of the MUT. In 1991 he received the highest scientific degree in Poland, the title of National Professor.

Professor Rogalski is one of the world leading researchers in the field of infrared optoelectronics. During the course of his scientific career, he made pioneering contributions in the area of theory, design and technology of different types of infrared detectors. In 1997, he received an award from the Foundation for Polish Science (the most prestigious scientific award in Poland – web site: www.fnp.org.pl/programy/rogalski) for achievements in the study of ternary alloy systems for infrared detectors; mainly alternative to HgCdTe new ternary alloy detectors (such as lead salts, InAsSb, HgZnTe, HgMnTe).

The most important achievements of Prof. Rogalski are:

- 1) determination of the fundamental physical parameters of InAsSb, HgZnTe, HgMnTe and lead salts, such as: intrinsic carrier concentration, effective masses, Fermi level, and carrier lifetime,
- 2) estimation of ultimate performance of ternary alloy detectors (quantum efficiency, R_0A product, detectivity, BLIP temperature, etc.),
- 3) elaboration of high quality PbSnTe, HgZnTe and HgCdTe photodiodes operated in 3–5- μm and 8–12- μm spectral ranges,
- 4) comparative study of the performance limitation of HgCdTe photodiodes versus other types of photon (special attention has been paid to quantum well infrared photodetectors) and thermal detectors.

The papers connected with points 1,2 and 4 are pioneering achievements, for the first time published in accessible literature.

Professor A. Rogalski gave more than 35 invited plenary talks at international conferences, is author and co-author of about 200 scientific papers, 9 books (Pergamon Press, SPIE Press, Gordon&Breach, Elsevier, Nauka, WNT), and 20 monographic papers (book chapters). One of the monograph (*Infrared Detectors*, Gordon and Breach Science Publishers, Amsterdam, 2000) was translated in to Russian by the publisher of “Nauka”. Number of citations by other authors (according to ISI in Philadelphia): about 1500 (one of his paper was cited about 250 times).

He was a head of the Institute of Applied Physics of the MUT in the period 1989–2002. Since 1994 he has been a head of the division of Solid State Physics. Under his supervision there were defended 6 Ph.D. persons.

Prof. A. Rogalski is a Fellow of the International Society for Optical Engineering (SPIE), Vice-President of the Polish Optoelectronics Committee, Member of Electronic and Telecommunication Division at Polish Academy of Science, Editor-in-Chief of scientific journal *Opto-Electronics Review* (its present *Impact Factor* is equal to 0.624), Deputy Editor-in-Chief of the *Bulletin*

of the Polish Academy of Sciences: *Technical Sciences*, Member of the Editorial Board of *Journal of Infrared and Millimetre Waves* and *Journal of Technical Physics*. In the period 1993–1996 he was the Vice-President of Polish Chapter SPIE.

Professor A. Rogalski is also very active member of the international technical community. He is co-chair and member of many scientific committees of national and international conferences on optoelectronic devices and crystal growth, conference chair and organizer of the *International Conference on Solid State Crystals*, and *Material Science and Material Properties for Infrared Optoelectronics*, co-editor of five SPIE Proceedings, and guest editor of *Optical Engineering*.

For scientific achievements and service to technical community, Prof. A. Rogalski was rewarded with many distinctions including a national high rank distinction: Krzyż Kawalerski Orderu Odrodzenia Polski, by the President of the Republic of Poland.

Professor **Leszek RUTKOWSKI**, Computer Engineering Department of the Technical University of Częstochowa, Poland.

Leszek Rutkowski was born in Wrocław, Poland, in 1952. He received M. Sc., Ph. D. and D. Sc. degrees in 1977, 1980, 1986, respectively, all from the Technical University of Wrocław, Poland. Since 1980, he has been associated with the Technical University of Częstochowa where he is currently a Professor and Chairman of the Computer Engineering Department. From 1987 to 1990 he held a visiting position in the School of Electrical and Computer Engineering at Oklahoma State University. His research interests include neural networks, fuzzy systems, computational intelligence, pattern recognition and systems identification. He published over 120 technical papers including 17 in various series IEEE Transactions. He is the author of the books “New Soft Computing Techniques for System Modelling, Pattern Classification and Image Processing” published by Springer (2004), “Flexible Neuro-Fuzzy Systems” published by Kluwer Academic Publishers (2004), “Adaptive Filters and Adaptive Signal Processing” (in Polish), and co-author of two others (in Polish) “Neural Networks, Genetic Algorithms and Fuzzy Systems” and “Neural Networks for Image Compression”. He is also President and Founder of the Polish Neural Networks Society and Chairman of the Polish Chapter of the IEEE Computational Intelligence Society. He organized and served as General Chair of the international conferences on neural networks, soft computing and artificial intelligence held in Poland in: 1996, 1997, 1999, 2000, 2002 and 2004. Prof. Leszek Rutkowski is an Associate Editor of the IEEE Transactions on Neural Networks and recently elected Member of the Polish Academy of Sciences. He is also the recipient of the 2005 IEEE Transactions Neural Networks Outstanding Paper Award. In November 2004 he was awarded by the IEEE Fellow Membership Grade for contributions to neurocomputing and

flexible fuzzy systems. Professional activities:

- Fellow of the IEEE – 2004
- Associate Editor of the IEEE Transactions on Neural Networks, 1998 – up to now,
- President of the Polish Neural Network Society, 1995 – up to now,
- Chairman of the IEEE Poland Section – Chapter Computational Intelligence – 2004,
- Vice – Chairman of the Electronics Committee of Polish Academy of Sciences – Silesian Chapter
- Member of the Committee of Biocybernetics and Biomedical Engineering of Polish Academy of Sciences
- Member of the Committee of Automation and Robotics of Polish Academy of Sciences

Roman SŁOWIŃSKI, Faculty of Computer Science and Management, Poznań University of Technology, Poland

Professor Roman Słowiński was born in 1952. Since the beginning of his university studies he has been connected with Poznań University of Technology. In 1974 he was graduated from the Faculty of Electrical Engineering, three years later he obtained doctor's degree, in 1981 habilitation degree, and in 1989 professor's title. He holds, moreover, several managerial positions. In years 1984–1987 he was deputy director of the Institute of Computing Science, responsible for education; in years 1987–1993 he was deputy dean of the Faculty of Electrical Engineering, responsible for research; he directed twice (1997–2001 and 2002–2004) a doctoral school of Computer Science. Actually, he is a professor at the Faculty of Computer Science and Management, and since 1989, head of the Laboratory of Intelligent Decision Support Systems within the Institute of Computing Science.

Professor Słowiński is a founder of a scientific school of “intelligent decision support”, proposing an original methodology of decision support resulting from a synthesis of operational research, artificial intelligence and decision theory in interactions with computing science. The main idea of this methodology consists in decision support using knowledge discovered from data, taking into account their practical “imperfection”, like: uncertainty, imprecision, inconsistency and incompleteness. Knowledge about decision situations concerns preferences which, in this methodology, are modelled in terms of “if... , then...” logical statements (decision rules) induced from examples of decisions, for problems of multiattribute and multicriteria choice, ranking and classification. Professor Słowiński presented an axiomatization of rule preference models and proved that they are more general than traditional models of preferences, like utility functions and outranking relations. Within preference modelling, he developed, moreover, graded quadrivalent logic for ordinal preferences. He also proposed a computing methodology for knowledge discovery from preference-ordered data,

consisting of original procedures for induction of decision rules, monotonic decision trees and association rules. He made many extensions to rough set theory on rough approximations involving similarity relations, relations of dominance in the sense of Pareto and Lorenz, partially missing data, hierarchical structure of attributes and criteria, variable consistency, and decision making under risk and uncertainty. He also initiated a stream of research and applications concerning interactive methods of multiobjective mathematical programming in both deterministic and fuzzy environment.

His methodological proposals have been verified in real world applications, e.g. Mobile Emergency Triage (MET) system implementing on a mobile platform (handheld computers) the rough set methodology for supporting medical diagnosis of an acute abdominal pain in the emergency room of a pediatric hospital (tested in Children's Hospital of Eastern Ontario, Ottawa), multicriteria programming of water supply systems in rural areas or applications of knowledge-based decision support for: vibroacoustic technical diagnostics, prediction of business failure and company acquisition, environmental protection, customer satisfaction analysis, classification of Siberian forests, and classification of histological images of cancerous tissues.

Professor Słowiński is the author or co-author of 320 publications, including 10 monographs, one textbook and 93 articles in indexed professional journals. Among his 320 publications, 40 appeared in Polish editions and 280 in international ones. These publications were cited over 1300 times (according to ISI).

Since 1999, prof. Słowiński is Co-Editor-in-Chief of the *European Journal of Operational Research* (Elsevier, 24 issues and 7200 pages per year). In years 1998–2001 he was Area Editor of Decision Analysis in the *Fuzzy Sets & Systems journal*. He is a member of editorial boards of 10 major scientific journals.

He supervised 20 doctorates and tutored 3 habilitations in Computer Science. He was often invited as visiting professor to universities in France, Italy, Germany, U.S.A., Canada, and Japan. In 1995 he was appointed Chairman of the Program Committee of the European Conference of Operational Research (EURO XIV) in Jerusalem. Since 1990 he has been a member of Computer Science Committee, and since 1993 also a member of Control Engineering and Robotics Committee of the Polish Academy of Sciences.

Professor Słowiński is doctor *honoris causa* of Polytechnic Faculty of Mons (2000) and University of Paris Dauphine (2001). He received Scientific Award by Department of Technical Sciences of the Polish Academy of Sciences (1984), Sixth EURO Gold Medal by European Association of Operational Research Societies (Aachen, 1991), Edgeworth-Pareto Award by International Society on Multiple Criteria Decision Making (Cape Town, 1997), Subsidy of the Foundation for Polish Science (2001) and Scientific Award of Poznań City (2003).

The Editorial Board of the Bulletin expresses the cordial greetings to all newly elected full and corresponding members of the Polish Academy of Sciences and wishes them lots of further successes.

T. Rychter

Election of the International Members of the Polish Academy of Sciences

During Plenary Session of the Division IV – Technical Sciences which was held on March 17, 2005, the procedure of the election of the new International Members of the Polish Academy of Sciences was performed. Five scientists from all over the world were chosen as the candidates for the membership, selected from the total number of 10 proposed candidates. All five candidates proposed by the Division IV in the way of the election were approved by the General Assembly of the Polish Academy of Sciences.

The following distinguished scientists were elected as the International Members of the Polish Academy of Sciences:

Professor **Dietmar GROSS**, Technische Universität Darmstadt, active in the field of mechanics;
Professor **Laszlo KEVICZKY**, Hungarian Academy of Sciences, active in the field of mechanics;

Professor **Billie F. SPENCER**, University of Illinois, USA, active in the field of mechanics;
Professor **Lofti A. ZADEH**, University of California – Berkeley, USA, active in the field of automation and informatics;
Professor **Jacek M. ŻURADA**, University of Louisville, USA, active in the field of informatics.

The Editorial Board sincerely congratulate elected scientists on joining the scientific community of the Polish Academy of Sciences. We are really proud of their presence on the list of the members of our Academy.

T. Rychter

Actualities

We have a great pleasure to announce that Professor Ryszard Tadeusiewicz, corresponding member of the Polish Academy of Sciences associated with our Division IV – Technical Sciences PAS, has been honoured with the exceptional title of the Doctor Honoris Causa of: the Technical University in Košice, the Łódź University of Technology and the University in Zielona Góra.

Therefore we would like to congratulate Professor R. Tadeusiewicz and wish him further successes.