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The Seventeenth World Congress IFAC

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In the range of July 6–11 Seul held the 17-th World congress of international federation on automatic control “IFAC’08”. IFAC holds World congresses once in three years.

Currently IFAC involves around 50 national organizations.

IFAC congress in Seul was the most representative over its entire history with the work program including around 2500 papers. Most of them were poster papers. Daily more than 30 sections operated so each participant of the congress can see only the peak of the enormous “iceberg”. Each day of the congress work started with two an hour-long plenary lectures delivered by recognized experts. Plenary lectures covered a wide range of various scientific trends and applications of theory and control systems, including not only traditional for IFAC trends but also review of state of research in the fields like energetics, industry, biology, medicine and economics.

The most impressive for the participants of the congress (including the authors of this chronicle) were two plenary papers.

The first paper (M. Raibert, Boston Dynamics, USA) dealt with a four-legged walking robot “big dog” created in Massachusetts technological institute and capable of moving along an uneven terrain and overcome obstacles, provided with GPS system, a side looking radar, a system of a computer vision and numerous other sensors. There is no doubt that currently this is the most modern autonomous robot assigned for transporting cargoes, including military ones in mountains, around areas with complex relief and so on.

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The second paper delivered by a Vice-president of the company “Hyundai Heavy Industries” Keh-Sik Min’a was devoted to automation and this company control systems applied in a shipbuilding industry. More precisely, it concerned with a modern level of Korean shipbuilding which became a world leader in this branch rather than automation itself.

For two days before the congress start young scientists and specialists from developing countries attended lecture courses and meetings where lectures on eighteen deliberately selected themes were delivered by prominent professors and skilled specialists. As a rule, the lectures covered the most recent commonly accepted methods closely investigated and proved to be successful. Moreover, consideration was given to new problems in control and close fields which are of particular interest to theorists and practitioners.

The most numerous both in number of presented papers and participants of sectional meetings one should recognize the sections that cover such scientific trends and spheres of application of control theory and systems: stability analysis (including nonlinear systems); identification (including identification of nonlinear systems); the synthesis of linear and nonlinear control systems; investigations of systems with a variable structure and systems with delay; analysis and synthesis of systems in uncertainty conditions of both stochastic and nonstochastic nature; robustness of control systems and their diagnostics; investigation of robots of different classes (including flying autonomous minirobots); economics and systems of management; application of control systems in transport, power engineering, metallurgy and manufacturing industry, health service and genetic engineering; mechatronics, nanotechnology (components of control systems). Matters of professional training including computer-driven learning systems were widely discussed.

Both in plenary lectures and sections the words “identification”, “robustness” and “adaptation” were heard most frequently.

As before a great attention was paid to application, specific results of control application in spheres like industry, agriculture, aviation and rocket complexes and various transport systems, biology, medicine and many others, including training and social sphere, as well as on establishing factors essentially affecting international stability. The relation between theoretical papers and those devoted to applications was approximately one to two.

Regardless of thorough selection of papers (of 3500 papers 2500 were included in the program of conference work) it is worth noting that the level of papers was inhomogeneous. First of all it is, apparently, accounted for by a general policy of the IFAC leaders tending to involve in IFAC functioning more specialists from countries of Asia, Africa and South America. That is why at the IFAC congress in Seul the number of specialists from these countries essentially increased compared with the previous congresses.

Currently Europe retains its leading position in the number of papers presented to IFAC congresses.

Unfortunately, we have to state the fact that as at the previous congresses delegation of Ukraine was one of the least numerous. Ukraine presented only four papers two of which were included in the congress program. With the number of Russian participants tending to increase from congress to congress (in Seul there were about 60 participants), Ukrainian scientists are not yet interested in participation in such authoritative and certainly the most fundamental world forum. It is worth noting that in the long run it can essentially decrease the level of both fundamental research and applied developments being conducted in Ukraine and also result in retard of current level of control and informatics sciences.

In the course of the 17-th Congress of IFAC work there was held the meeting of IFAC General Assembly, where the report of IFAC President Professor Wook Hyun Kvon concerning the work of IFAC

leadership over 2005–2008 was heard and approved. As the new IFAC president for the nearest three years was unanimously elected a prominent specialists in the field of control theory Professor A. Isidory (Italy). The decision was made on conducting the next 18-th IFAC congress in Milan in late August — early September, 2011.

One of the significant achievements of the period under report was creation jointly with the Publishing House Elsevier (the basic publisher of IFAC) of web-site “IFAC Papers On Line. Net”. This site is on-line and available archive including papers of all symposia, congresses, conferences and most of meetings. Its basic features are the following:

- open (free of charge) access for everybody to read and obtain copy of all material available on the site;
- over one calendar month one can obtain up to 25 papers;
- all papers are published on the site in PDF-format whose search can be performed by ISSN transactions of IFAC, classifier ISBN or the individual identifier DOI.

Creation of such site allows one to have on-line access to new results and achievements in the corresponding fields of science and practice of control with their further application in one’s development and research.

We should note the congress perfect organization and conducting. The entire work of congress and its sectional meetings were held in the World Trade Center of Seul, which looks like a real castle, in its perfectly equipped laboratories. The participants of the Congress had a possibility to use Internet service.

The conduction of IFAC congress in Seul was widely covered in central Korean mass media and on television. One could feel that the IFAC congress in Korea was the event of national scale.