

16th IFAC Symposium on Automatic Control in Aerospace Systems

(St. Petersburg, Russia)

The 16th IFAC Symposium on Automatic Control in Aerospace Systems took place in St. Petersburg on June 14–18, 2004. Symposium was organized by the International Institute of Advanced Aerospace Technologies of State University of Aerospace Instrument-Making Industry together with the Central Research Institute "Elektropribor". The International Program Committee, which joined leading specialists in aerospace systems, was headed by Academician of Russian Academy of Sciences G.V. Peshekhonov, and the National Organizational Committee was headed by Professor A.V. Nebylov.

Symposia on this topic are held regularly every three years. They gather together leading specialists, working both in theory and in practical applications of aerospace systems from many countries of the world. The number of lectures presented for participation in the 16th Symposium, was twice as big as a usual quantity for IFAC events of this level. This enabled organizers to compose an unusually interesting and informative Symposium Program.

The selected lectures were distributed by the International Program Committee between nine regular and six special sections. Six plenary lectures of outstanding world-level specialists were scheduled.

Symposium sections

Regular sections:

1. Modern state-of-the-art of national and international space programs (plenary lectures only).
2. Control of orientation and orbital motion of spacecrafts.
3. Autonomous control, control of missions and operations.
4. Space robots and manipulators.
5. Pointing and control: Theory and practice.
6. Control of flights of planes and helicopters.
7. Pointing, navigation and control of rockets.
8. Robust control for aerospace applications.
9. Sensors, on-board equipment and signal processing.

Special sections:

10. Fault-tolerant control systems for aerospace applications.
11. Student aerospace projects.
12. Launch control.
13. Monitoring of state of gas turbine engines.
14. Joint (cooperative) control.
15. Application of satellite navigation systems GPS/GLONASS.

Plenary lectures

Lebostaev V.P. (S.P. Korolev Rocket-Space Corporation "Energiya", Russia). Russian space programs: achievements and prospects of automatic control application.

Sackheim R. (Marshall NASA Center of Space Flights, USA). US view to studying space — lecture was not delivered.

Silvestrin P. (European Space Agency). On-board systems of control and navigation for new European missions for Earth observations.

Miyazawa Y. (JAXA National Aerospace Laboratory, Japan). State of Japanese space programs, with stress on demonstration of high-speed flights.

Kurzhanskiy A.B., Krotov A.F. (Moscow M.V. Lomonosov State University, Institute of Problems of Control of Russian Academy of Sciences). National achievements in control theory: aerospace prospects.

Isermann R. (Institute of Automatic Control, Technical University of Darmstadt, Germany). Detection and diagnostics of failures, based on models – state-of-the-art and application.

A great interest was shown to the foreseen by Symposium Program visit to two Russian research centers: A.M. Mozhaitskiy Military Space Academy and Central Research Institute "Elektropribor".

In the Museum of Military Space Academy, Symposium participants got acquainted with history of formation and development of cosmonautics in the USSR (Russia), saw space pieces, including manned spacecraft for Moon landing and launching from Moon surface (created within the framework of the Moon program, non-implemented in the USSR).

In the Central Research Institute "Elektropribor", some samples of precision navigation systems, developed in this well-known scientific and technological center of Russia, were demonstrated.

Some 200 participants from 25 countries took part in the Symposium. The largest number of participants were from Russia, USA and Japan. Ukraine was represented by six lectures:

Konyukhov S., Dranovskiy V., Saltykov Yu., Khoroshilov V., Melanchenko A., Zlatkin E., Kudin N., Efimenko N., Dubina Yu. Control system of microsatellite "Micron" (Section 2).

Kulik A., Simonov V., Pasechnik S., Komkov A. Control system of gas turbine engines of an unmanned aircraft (Section 13).

Kulikov G., Arkov V., Epifanov S., Minaev I. Development of a module for monitoring state of aviation engines and its experimental study (Section 13).

Kuntsevich V. Synthesis of optimal and suboptimal control systems under the presence of bounded disturbances (Section 5).

Lebedev D., Tkachenko A. High-precision control of orientation of a satellite for remote probing of Earth (Section 8).

Ryabokon D. Spatial reconstruction of Earth surface using stereoscopic images (Section 11).

We should mention good organization of preparation and holding of Symposium. The event was accompanied by an extensive cultural program.

Secretariat of National Committee of Ukrainian Association for Automatic Control has complete texts of lectures presented at the 16th IFAC Symposium on Automatic Control in Aerospace Systems. (Phone for contacts (044) 266 4124).