X International Workshop “Stability and Oscillations of the Nonlinear Control Systems”

PACS number: 02.30.Yy

DOI: 10.1134/S000511790909001X

This thematical issue presents selected papers based on the materials of the X Pyatnitskii International Workshop “Stability and Oscillations of the Nonlinear Control Systems” held on June 3–6, 2008. The workshop was dedicated to the memory of Academician Valentin Vital’evich Rumyantsev, an outstanding expert in the general mechanics and theory of motion stability. Rumyantsev always supported this workshop, was permanent member of the Program Committee, and on repeated occasions made reports. In 1992 Rumyantsev made the report “A.M. Lyapunov and Development of his Ideas in the Theory of Motion Stability,” the first plenary paper in the history of these workshops. His last plenary paper at the workshop Rumyantsev made in 2006; the paper was published in “Automation and Remote Control,” 2007, no. 8.

The Memorial conference was attended by 283 experts from this and foreign countries such as Armenia, Belarus, Kazakhstan, Ukraine, Bulgaria, Great Britain, Germany, Israel, Ireland, Canada, Mexico, Portugal, Romania, United States, and France who made 208 reports. The present issue of “Automation and Remote Control” allows one to judge the level of conference, as well as the novelty and originality of the presented findings. Papers based on the reports are published also in *Prikladnaya matematika i mekhanika* (Applied Mathematics and Mechanics) and in the collected papers *Problemy analiticheskoi mekhaniki i teorii ustoychivosti* (Problems of Analytical Mechanics and Stability Theory) dedicated to the memory of Academician Rumyantsev (Moscow: Fizmatlit, 2009).

The main areas of scientific research discussed at the X Workshop were as follows: general issues of the theory of stability and motion stabilization, general issues and methods of the theory of nonlinear oscillations, methods of the Lyapunov functions for the nonlinear control systems and the Hamilton–Jacoby–Lyapunov–Bellman method in the control theory and game problems of control, classical mechanics and nonlinear dynamics, problems of controllability and observability of the control systems, problems of robust control, control of mechanical systems, stability and control of hybrid systems and systems with switchings, applied problems, and computer-aided methods.

The program consisted of three plenary sessions, sixteen sessions, and general discussion. The program included eleven 45-minute invited reports, thirteen half-hour lectures on the workshop topics, and 179 20-minute reports. Three additional reports were made outside the scope of the program.

Extended abstracts of all reports included in the workshop program are published in two working languages at <http://www.stab08.ru/> where all necessary information can be found as well.

On June 4 the participants visited the tomb of Rumyantsev.

The conference was supported by the the Russian Foundation for Basic Research, project no. 08-01-06051-g and Department of Power Engineering, Machine Building, Mechanics, and Control Processes, Russian Academy of Sciences.

V.N. Tkhai