

PREFACE TO THE JOURNAL

Nonlinear Dynamics and Systems Theory represent a new direction of investigation during the last two decades. The primary goal of the Theory of Systems is to develop unified methods of mathematical modelling of processes and phenomena, in nature and society, so that to establish the conditions of their dynamics and to control them, if necessary. This aim can be attained by a profound and comprehensive analysis of various phenomena occurring in the world that, as a rule, are nonlinear, nonstationary, with random and/or parametric perturbations, taking place at changing of the environment parameters, in near-Earth area or in space.

The hierarchy of theories, at different levels appearing in the result of analytical, qualitative, numerical or experimental studies of such type systems is a corner-stone of the Theory of Systems being developed nowadays.

The constructive results of Nonlinear Dynamics have created necessary premises for the development of the mathematical Theory of Systems characterized by at least two exceptional features:

- the higher degree of generality of the mathematical modelling technique for real processes and phenomena (continuous, discrete, impulsive, system with delay, etc.), and
- “available” transparency for returning from general results to various concrete phenomena and technologies being partial interpretations.

The new Journal presented to the attention of the readers and investigators encompasses a wide branch of natural sciences falling under the scope of Nonlinear Dynamics and Systems Theory:

- * Analysis of uncertain systems
- * Bifurcations and instability in dynamical behaviors
- * Celestial mechanics, variable mass processes, rockets
- * Control of chaotic systems
- * Controllability, observability, and structural properties
- * Deterministic and random vibrations
- * Differential games
- * Dynamical systems on manifolds
- * Dynamics of systems of particles
- * Hamilton and Lagrange equations
- * Hysteresis
- * Identification and adaptive control of stochastic systems
- * Modelling of real phenomenon by ODE, FDE and PDE
- * Nonlinear boundary problems
- * Nonlinear control systems, guided systems
- * Nonlinear dynamics in biological systems
- * Nonlinear fluid dynamics
- * Nonlinear oscillations and waves
- * Nonlinear stability in continuum mechanics
- * Non-smooth dynamical systems with impacts or discontinuities
- * Numerical methods and simulation
- * Optimal control and applications
- * Qualitative analysis of systems with aftereffect

- * Robustness, sensitivity and disturbance rejection
- * Soft computing: artificial intelligence, neural networks, fuzzy logic, genetic algorithms, etc.
- * Stability of discrete systems
- * Stability of impulsive systems
- * Stability of large-scale power systems
- * Stability of linear and nonlinear control systems
- * Stability theory of intelligence media
- * Stochastic approximation and optimization
- * Symmetry in mechanics.

The aim of the new Journal of Nonlinear Dynamics and Systems Theory is to publish the most significant scientific results in the field obtained at the leading mathematical centres of Europe, in the countries of the former USSR and the rest of the world.

The papers will be thoroughly reviewed by the Regional Editors and the members of the Editorial Board of the Journal.

Our Journal is open to all scientists and experts who consider it suitable for new contributions to Nonlinear Dynamics and Systems Theory and aims at the presentation of such new results to the world scientific community.

I have the pleasure to express my sincere gratitude to Professor, Dr.V.Lakshmikantham for his kind support in setting up new journal under methodological and academic auspices of International Federation of Nonlinear Analysts (USA).

Also, I am thankful to all people who have helped us in one way or another while starting this Journal.

Professor A.A. Martynyuk