



On the Past Ten Years and the Future Development of Nonlinear Dynamics and Systems Theory (ND&ST)

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On the analysis of journal, conference papers and books with titles containing the words related to "nonlinear mechanics", "nonlinear dynamics", and "nonlinear analysis", we saw a large number of such papers, where theory and applications were being investigated. See, for example, (70Kxx MSC 2010) for nonlinear dynamics and (93–XX MSC 2010) for systems theory. With this observation, we set up a new scientific journal, entitled "Nonlinear Dynamics and Systems Theory" (ND&ST), in 2001. The scopes of the journal also include topics on stability theory and its applications.

Over the last 10 years, the members of the Editorial Board, especially the past and current Regional Editors C. Corduneanu, C. Cruz-Hernandez, H.I. Freedman, A.D.C. Jesus (former), M. Ikeda (former), J. Mildowney (former), S. Omatru (former), Peng Shi, S. Sivasundaram (former), K.L. Teo, and J. Wu (former), have made significant contributions to the improved quality of the published papers. They also helped shape the directions and focuses of the Journal. All papers received are subject to a rigorous reviewing process. Approximately 30% of the submitted papers were rejected in 2010.

Member of the Editorial Board are known scholars and they work actively promoting the journal. Changes in the Editorial Board take place every year, allowing for active high profile young researchers to be invited to join the Editorial Board. We find this practice effective.

In addition to regular papers, ND&ST also allocates a section called "Personage in Science" for some issues, publishing short biographical sketches, reviews of results, and

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lists of main works by A.M. Lyapunov, N.N. Bogoluybov, Yu.A. Mitropolsky, V.I. Zubov and other scholars who have made fundamental contributions to the development of nonlinear dynamics and systems theory. ND&ST has so far published 5 Special Issues listed below:

- Stability Analysis and Synthesis for Time Delay Stochastic Nonlinear Systems (Guest Editors: Sing Kiong Nguang and Peng Shi). *Nonlinear Dynamics and Systems Theory* **4** (3) (2004) 243–380.
- System Science and Optimization Approaches to Nonlinear Dynamics and Systems Theory with High Technology Applications (1) (Guest Editors: Wuyi Yue and Kok Lay Teo). *Nonlinear Dynamics and Systems Theory* **6** (3) (2006) 211–308.
- System Science and Optimization Approaches to Nonlinear Dynamics and Systems Theory with High Technology Applications (2) (Guest Editors: Wuyi Yue and Kok Lay Teo). *Nonlinear Dynamics and Systems Theory* **7** (1) (2007) 1–112.
- Dynamic Equations on Time Scales: Qualitative Analysis and Applications (Guest Editors: M. Bohner and J.M. Davis). *Nonlinear Dynamics and Systems Theory* **9** (1) (2009) 1–108.
- Dynamical Systems and Control Theory and Their Applications. In dedication to Professor T.L. Vincent (Guest Editors: B.S. Goh and K.L. Teo). *Nonlinear Dynamics and Systems Theory* **10** (2) (2010) 103–201.

These Special Issues have attracted a wider readership and more subscriptions. On the initiative of the Editorial Board members, the following review papers were published:

- ★ G.A. Leonov and M.M. Shumafov. Stabilization of Controllable Linear Systems. *Nonlinear Dynamics and Systems Theory* **10** (3) (2010) 235–268.
- ★ A.A. Martynyuk. Stability in the Models of Real World Phenomena. *Nonlinear Dynamics and Systems Theory* **11** (1) (2011) 7–52.

ND&ST is a scientific journal which provides an international forum for scientists, engineers, researchers, and practitioners to present new research findings and state-of-the-art solutions, and to open new avenues of research and developments, on all issues and topics related to nonlinear dynamics and systems theory, including those in aerospace and neuron.

Starting from 2012, the Journal will publish titles and abstracts of PhD theses, which are within the scopes of the Journal and submitted by Regional Editors. For an excellent dissertation within the scopes of ND&ST, the author will be given the option of publishing the complete dissertation in ND&ST as a supplemental issue of the Journal after receiving positive reports from two independent reviewers and the handling editor. The author will be responsible for copy editing and, as such a dissertation would normally be published with minimum modification unless it is requested by the reviewers and/or the handling editor. The author will retain the copyright.

Upon consultation with the Regional Editors and the Honorary Editors Professors T.A. Burton and S.N. Vassilyev, the aim and the scopes of ND&ST are listed as follows:

- 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
- Modeling of real phenomena 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

- Stochastic approximation and optimization
- Symmetries and conservation laws.

Nonlinear Dynamics and Systems Theory (ISSN 1562-8353 (Print), ISSN 1813-7385 (Online)) is an international journal published under the auspices of the S.P. Timoshenko Institute of Mechanics of National Academy of Sciences of Ukraine and Curtin University (Perth, Australia). It aims to publish new significant scientific results within the scopes listed above.