

MCSS special issue on

Robust Stability and Control of Large-Scale Nonlinear Systems

Aims and scope of the special issue This topic is currently a very active research area due to recent breakthroughs achieved for nonlinear interconnected systems and new emerging application areas like biological systems, telecommunication networks, power networks, or logistics networks. While research in large-scale systems analysis and synthesis can be traced back to at least the 1970s, the developed theory is mostly linear. Recently, interest in this subject has been revived by new contributions centered on nonlinear systems, nonlinear stability concepts and control approaches. It is to be expected that the interest in this area will continue to increase, due to, e.g., current research efforts in distributed model predictive control, next generation smart electricity grids, incorporating green and renewable energy sources, or bio- and neuro-engineering.

The journal *Mathematics of Control, Signals, and Systems* (MCSS) is soliciting papers for a special issue on this important subject. The aim of this special issue is to collect the latest theoretical achievements, highlight contemporary applications in this area as well as to provide surveys about the current state of the art to motivate and enable readers, in particular younger graduates, to join this newly revived research direction. Original and high-quality papers with mathematically rigorous aspects of robust stability and control of nonlinear interconnected systems are invited to contribute to this special issue.

Topics of interest for this special issue include, but are not limited to

- Stability and robustness of decentralized nonlinear systems
- Characterization and quantification of stability and robustness in large-scale systems
- Input-to-state stability and related concepts, passive and dissipative distributed systems
- Stochastic, uncertain or hybrid distributed systems
- Stability of decentralized controlled systems
- Stability of control under communication constraints
- Decentralized sensing and estimation
- Network topology identification

Submission details All manuscripts must be submitted via the “Editorial Manager” (EM) system of MCSS at <http://www.editorialmanager.com/mcss>. When submitting a manuscript for this special issue via EM, please select the entry “Special issue on robust stability and control of large-scale nonlinear systems” from the article type menu in order for the manuscript to be considered for this special issue.

All papers will be reviewed by at least two reviewers and may be sent back to the authors for a revision that should be completed within at most one month. The final publication decision based on the recommendations of the guest editors will be taken by the Editors-in-Chief. The editorial policy of MCSS is to *publish original and high-quality research papers concerned with mathematically rigorous system theoretic aspects of control and signal processing* (see the journal home page). Please note that the two criteria *high-quality* and *mathematically rigorous* are taken very seriously and are not at the discretion of the guest editors. Due to volume size limitation, some accepted papers may be recommended to be published as regular papers in MCSS.

Important dates

Deadline for the initial submission of manuscripts May 1, 2011
 Notification about the first decision September 1, 2011
 Revised manuscripts due October 1, 2011
 Notification about final acceptance decision November 1, 2011
 Publication of the special issue Early 2012

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Journal homepage <http://www.springer.com/mathematics/applications/journal/498>