Call for papers

Mathematics of Control, Signals, and Systems

MCSS topical collection
Input-to-state stability for infinite-dimensional systems

Aims and scope of the topical collection: The question of stability is central for most control problems. Input-to-state stability (ISS) of a control system (which depends on initial states and control inputs) unifies the stability of the undisturbed/uncontrolled system and the stability with respect to the inputs in a way that is invariant under non-linear state-space transformations. For finite-dimensional systems, particularly for systems described by (nonlinear) ODEs, this concept is well-studied and has proved to be important for robust control, such as for designing nonlinear stabilizing controllers and observers. The natural question about a corresponding theory for infinite-dimensional systems has been addressed more intensively in the last years. As for the finite-dimensional situation, a profound understanding of ISS for distributed parameter systems would provide an important tool to study modern applications of control theory to chemical reactors, traffic networks, multi-body systems and fluid-structure interactions, etc.

The journal *Mathematics of Control, Signals, and Systems (MCSS)* is soliciting papers for a topical collection on this timely subject. The aim is to collect original high-quality papers as well as surveys on mathematical aspects of input-to-state stability for infinite-dimensional systems.

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

- ISS for partial differential equations
- ISS for boundary control systems
- Lyapunov methods for input-to-state stability
- Applications of ISS to robust control and observation of PDE systems
- ISS for coupled infinite-dimensional systems (including delays)

Submission details: All manuscripts must be submitted via the Editorial Manager (EM) system at http://www.editorialmanager.com/mcss. When submitting a manuscript for this topical collection, please select the entry *Topical collection on input-to-state stability for infinite-dimensional systems* in the EM. 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 on mathematical control and system theory, including system theoretic aspects of signal processing. The topical collection will be published separately from the regular MCSS issues in SpringerLink. In addition, all accepted papers will appear in regular issues of MCSS as soon as they are ready for publication.

Important dates:

Deadline for the initial submission of manuscripts	October 1, 2019
Notification about the first decision	February 1, 2020
Revised manuscripts due	March 1, 2020
Notification about final acceptance decision	April 1, 2020
Publication of the complete topical collection	Autumn 2020

Guest Editors:

Birgit Jacob, University of Wuppertal (Germany), bjacob@uni-wuppertal.de
Andrii Mironchenko, University of Passau (Germany), andrii.mironchenko@uni-passau.de
Felix Schwenninger, University of Hamburg (Germany), felix.schwenninger@uni-hamburg.de

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

http://www.springer.com/journal/498

Mathematics of Control, Signals, and Systems
Editors-in-Chief: Grüne, L.; van Schuppen, J.H.; Sontag, E.D.
ISSN: 0932-4194 (print version)
ISSN: 1435-568X (electronic version)
Journal no. 498