SURVEY and REVIEW

Andrii Mironchenko and Christophe Prieur are the authors of "Input-to-State Stability of Infinite-Dimensional Systems: Recent Results and Open Questions," the Survey and Review paper in this issue of *SIAM Review*. Introduced in the late 1980s by E. Sontag, the notion of input-to-state stability (ISS) revolutionized the control theory of finite-dimensional systems. The ISS framework has provided a range of powerful tools that, for instance, make it possible to study networks of large numbers of components and develop approaches that are robust against disturbances due to measurement or modeling errors, hidden dynamics, external disturbances, etc. On the other hand, many problems of current interest (fluid-structure interactions, aircraft wings, flexible elements in multibody systems, etc.) require the control of systems described by partial differential equations, delay differential equations, and other models where the state space is infinite-dimensional. The aim of this survey is to describe the application of ISS to such infinite-dimensional problems. The paper starts by presenting an abstract framework that allows for a unified treatment of a wide variety of techniques and problems. Sections 5–8 are more applied and successively consider systems of parabolic or hyperbolic partial differential equations, systems built up from interconnected components, and systems with delays.

The long list of references and open problems will make the survey valuable for people working in this area. In addition, by reading the paper, many colleagues will acquaint themselves with modern tools in control theory and a raft of problems of current interest that require the control of infinite-dimensional systems.

J. M. Sanz-Serna
Section Editor
jmsanzserna@gmail.com