



symmetry



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Symmetry in Dynamic Systems

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Message from the Guest Editor

Dear Colleagues,

Dynamic system theory considers many different aspects such as decomposition, decoupling, observability, controllability, and so on. It is well known that in linear systems, observability and controllability are dual properties: If a linear system is observable, the dual system is controllable and vice versa. Further, the problems of filtering and control in linear systems are dual as well. Some matrices characterizing these problems are related to each other, and these relations can be used in practice. In addition to this, some dualities are known in nonlinear systems.

Such dualities can be considered as a special kind of symmetry. It is interesting to find and investigate other similar dual properties of linear and nonlinear systems and demonstrate their practical applications.



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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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