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Study on Convergence of Nonlinear Dynamical Systems

Guest Editors:

Prof. Dr. Gerard Olivar-Tost
Department of Natural Sciences and Technology, University of Aysen, Coyhaique 5950000, Chile

Prof. Dr. Enric Trullols-Farreny
Department of Applied Mathematics, Universitat Politècnica de Catalunya, BarcelonaTech, 14, 08028 Barcelona, Spain

Dr. Deissy Milena Sotelo Castelblanco
Department of Mathematics and Statistics, Universidad Nacional de Colombia, Manizales 170004, Colombia

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Message from the Guest Editors

Achieving convergence is a critical objective in control theory. Control algorithms aim to guide a system towards a desired state, and ensuring convergence ensures that the system settles into the desired configuration accurately and efficiently. For instance, in autonomous vehicle control, convergence guarantees that the vehicle's trajectory converges to the desired path, enhancing safety and precision. In dynamical systems, convergence analysis helps in understanding the long-term behavior of systems. Chaos theory, for example, explores the behavior of chaotic systems and examines whether they strongly depend on initial conditions or eventually converge to certain attractors.

In conclusion, the convergence of nonlinear systems is a fundamental concept in dynamical systems and control theory. It underpins the stability and predictability of complex systems, facilitating their control and manipulation. Researchers and engineers continue to explore and develop sophisticated techniques to ensure convergence, enabling advancements in various fields and technologies.

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Editor-in-Chief

Prof. Dr. Francisco Chiclana
School of Computer Science and Informatics, De Montfort University, The Gateway, Leicester LE1 9BH, UK

Message from the Editor-in-Chief

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Mathematics Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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