

Special Issue

Advances in Fractional-Order Control and Optimization for Sustainable Energy Systems

Message from the Guest Editors

Fractional-order control and design techniques have emerged as powerful tools for advancing sustainable energy systems, offering enhanced performance, robustness, and flexibility in modeling and controlling complex renewable energy dynamics. Unlike traditional integer-order controllers, fractional-order controllers leverage fractional calculus to better capture the memory effects, nonlinearities, and distributed characteristics inherent in green energy technologies. This Special Issue will highlight cutting-edge developments in fractional-order control theory and its transformative applications in sustainable energy systems. Fractional-order methods provide critical advantages for renewable energy integration and optimization, Precision modeling of renewable resources, Fractional-order systems accurately characterize the complex dynamics of solar irradiance, wind patterns, and energy storage behaviors.

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About the Journal

Message from the Editor-in-Chief

Fractal and Fractional (*Fractal Fract.*) is a scholarly online journal which provides a forum for discussion on new original models and methods in fractals and fractional calculus both from theory and applications. It is a peer-reviewed, open access journal that publishes high quality original research articles, review papers and short communications.

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