IFAC
INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL

Open Invited Tracks

Fractional Partial Differential Equations: Analysis, Computation, and Machine Learning

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Abstract

With the rapid development of the study on fractional partial differential equation models, relating scientific research aspects have attracted intensive attention. The session is devoted to recent advances on analysis, computation, and machine learning of fractional partial differential equations.

- Choice of an IFAC technical committee for evaluation: Design methods
- Detailed description of the topic

Fractional calculus has important applications in numerous practical fields, mainly due to the fact that the fractional integral and differential operators are adequate instruments characterizing heredity and nonlocality. In recent decades, study on fractional partial differential equation models has been booming up, which leads to increasing attention to theoretical and numerical study on fractional partial differential equations. This session is dedicated to analysis, computation, as well as relating machine learning aspects in fractional partial differential equations. It focuses on but are not limited to:

- Existence and uniqueness of the solution to fractional partial differential equations;
- Asymptotic and regularity of the solution to fractional partial differential equations;
- New discrete fractional calculus;
- Novel numerical methods for fractional partial differential equations;
- Fractional partial differential equations in machine learning;
- Data-driven fractional differential equation models.