



Mathematical Problems in Engineering

Special Issue on

Partial Fractional Equations and their Applications

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In current years, the partial differential equations, both fractional and integer orders have been documented as a dominant modelling procedure. To precisely reproduce the nonlocal, frequency- and history-dependent properties of power law phenomena, some different modelling tools based on fractional operators have to be introduced.

In particular, the advantages of fractional calculus and fractional order models meaning differential systems involving fractional order integrodifferential operators and their applications have already been intensively studied during the last few decades with excellent results.

The long-range temporal or spatial dependence phenomena inherent to the fractional order systems present unique peculiarities not supported by their integer order counterpart, which permit better models of the dynamics of complex processes. Although noninteger differentiation has become a popular tool for modelling and controlling the behaviours of physical systems from diverse applied branches of the science, many problems remain to be explored and solved.

While the investigation of the phenomena is described by the interaction of many organisms, the microsimulation plays an important role, and as a result the computers become more and more scientific instruments.

The objective of this special issue is to report and review the latest progress in the following areas of partial differential equations.

Potential topics include, but are not limited to:

- ▶ Fractional partial differential equations and their applications in science and engineering
- ▶ Modelling and simulation real world phenomena with partial differential equations
- ▶ Analytical and numerical methods for partial differential equations
- ▶ New applications of the iterations method
- ▶ Anomalous diffusion

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