Advances in Mathematical Physics

Special Issue on
Qualitative and Quantitative Techniques for Differential Equations Arising in Mathematical Physics

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Differential equations are a key tool in modeling physical phenomena. Most of physical laws of natural sciences are expressed in terms of differential equations, for example, balance laws of mass or energy and momentum. Additionally, differential equations are also employed in modeling population dynamics, diseases, and other.

In this special issue we focus on bringing together applications and theoretical developments on differential equations oriented to problems arising in physical sciences. To this end, this issue will provide a forum to investigate the advances in the qualitative and quantitative techniques for ordinary differential equations, partial differential equations, fractional differential equations, integrodifferential equations, and difference equations.

Potential topics include but are not limited to the following:

- ▶ Symmetries, differential equations, and applications
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- ▶ Conserved quantities in natural phenomena
- ▶ Completely integrable equations in mathematical physics
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- ▶ Equations admitting weak soliton solutions
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