

Malaya Journal of Matematik

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Special Issue on Analysis and Applications of Differential Equations- 2019

Call for Papers:

Differential equations play a vital role in modeling various natural phenomena. In physics, such equations arise in the wave equations, Lagrange equations of motion, in CLR circuit and so on. In epidemiology, the SIR model is the system of differential equations. Other examples in life sciences include the logistic model in population dynamics and neural networks. These models also arise in engineering, chemistry, economics and so on.

Analyzing the existence and uniqueness of solutions of such differential equations is an important task. Various fixed point theorems are used to derive such results. Further, in application point of view it is necessary to analyze stability of solutions of these equations.

For the local stability, one can use the eigenvalues of Jacobian matrix of the system in the neighborhood of equilibrium point. On the other hand, the Lyapunov function methods are used to derive global stability results. The stable manifold theorem and the Hartman-Grobman theorem are the celebrated results in this field.

Different methods are proposed for explicit solutions of differential equations. For linear equations, methods such as Laplace transform, separation of variables provide an exact solutions. In general, the nonlinear differential equations cannot have an exact solutions. Numerical methods- in such cases - play an important role. Runge-Kutta methods, Adams-Bashforth methods, predictor-corrector methods are some of the popular ones.

On the other hand, fractional calculus is appeared as rich and beautiful field of research due to their applications to the physical and life sciences and it is witnessed by blossoming literature. The importance of fractional calculus growth is notable not only in pure and applied mathematics but also in physics, chemistry, engineering, biology, and other branches of science.

The goal of present special issue is to address the recent developments in the area of analysis and applications of differential equations. This special issue will accepts high quality articles containing original research results and review articles. All papers are subject to a strict peer review.

We cordially invite the researchers working on various aspects of analysis and applications of differential equations to submit their work to this special issue .

Potential topics include, but are not limited to:

- Fractional Differential Equations
- Dynamical Systems
- Nonlinear ordinary and partial differential equations and systems, boundary value problems,
- Nonlinear integral equations
- Differential inclusions, functional-differential equations and inclusions
- Stochastic differential equations and systems
- Fixed points-Theory and applications
- Impulsive differential equations
- Delay differential equations
- Integral Inequalities and their Applications
- Relations between number theory and differential equations
- Numerical techniques

Authors are requested to submit their papers directly to the Lead Guest Editor or Guest Editors.

Important dates:

- Submission Deadline : January 10, 2019
- Notification of final acceptance : February 20, 2019
- Publication date : March 01, 2019

Lead Guest Editor:

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