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Symmetry and Polynomial Approximations of Differential Equations

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Deadline for manuscript submissions:
closed (15 May 2022)

Message from the Guest Editor

Differential equations are used in the modeling of many model problems in science and engineering. Finding the analytical solution for many of these equations is difficult. Therefore, approximation techniques are needed to solve them. It is also of great importance that the methods presented be effective and practical. On the other hand, polynomials with symmetry properties provide convenience as well as the ability to be used in various fields of science and engineering. Further, special polynomials have an important place in the investigation of solutions of differential equations—for example, Chebyshev polynomial, Taylor polynomials, Bernstein polynomials, Laguerre polynomials, Legendre polynomials, Euler polynomials, Lucas polynomials, Bell polynomials, Pell-Lucas polynomials, Muntz–Legendre polynomials, and exponential polynomials. Moreover, symmetric and orthogonal polynomials can also provide convenience in polynomial approximations of differential equations. Thus, in this Special Issue, we aim at the development and analysis of new polynomial approximations for the solutions of differential equations.

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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Journal Rank: JCR - Q2 (*Multidisciplinary Sciences*) / CiteScore - Q1 (General Mathematics)

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