

## **Orthogonal polynomials and special functions OPSF2019**

Orthogonal polynomials and special functions play an important role in developing numerical and analytical methods in mathematics, physics, and engineering. Over the past decades, this area of research has received an ever-increasing attention and has gained a growing momentum in modern topics, such as computational probability, numerical analysis, computational fluid dynamics, data assimilation, statistics, image and signal processing etc.

Orthogonal polynomials are crucial to the stability of high-order numerical methods, such as hp/spectral-element methods for ordinary and partial differential equations and fast Fourier or wavelet transformations in signal processing. These high-order numerical methods, originally formulated for partial differential equations, have been extended to integral, integro-differential equations, stochastic differential equations, and yet, these methods have not been well understood in various fields. The study of orthogonal polynomials and corresponding numerical methods helps us deepen our understanding of these more general mathematical models that can capture non-Gaussian, non-Markovian, and non-Newtonian phenomenon. An importance is placed on vital and important developments in classical analysis, number theory, mathematical analysis, mathematical physics, symmetric functions, combinatoric, and other parts of the natural sciences.

The purpose of this special issue is to report and review the recent developments in applications of Orthogonal Polynomials, Special Functions and Computer Algebra:

Applications in Engineering. This special issue of Applied Mathematics and Nonlinear Sciences will contain contributions from leading experts in areas ranging from mathematical modeling, high-order numerical methods for differential, integral and integro-differential equations, stochastic differential equations, statistics, information and communication sciences and beyond.

The guest editors aim that the papers in this special issue will help understand the state-of-art high-order methods for models of complex systems and boost in-depth insights and discussion in a wide research community of related topics.

All the Submission will be done by Special Issue Link:

<https://content.sciendo.com/view/journals/amns/amns-overview.xml?fbclid=IwAR1Nxf41QY29o8-4EgGuU7L1x4MrBzOUvDwlp0KPXm8Plvt93a6D8dm2IHM>

### **Guest Editors:**

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### **Important dates**

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