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Recent Advances in Fractional Order Elements with Applications

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Deadline for manuscript submissions:
closed (30 April 2023)

Message from the Guest Editors

Over the last two decades, researchers have shown enormous interest in the study of the fractional order system, as is evident from the exponentially growing number of publications in the field. The topic is quite advanced in the theoretical domain, with famous mathematicians having worked on developing fractional calculus and renowned scientists designing various circuits and specially designed fractional PID controllers. Many seminal works have rightly pointed out that fractional order system modeling and controllers are more effective than standard ones.

Unfortunately, we have still not achieved acceptance of the fractional controller/fractional circuits by the industry, nor has it been well adopted in undergraduate curricula. One of the main reasons for this may be the unavailability of a commercial fractional order element which can be readily used in the electronic laboratory like capacitors, resistors, or inductors are. In this perspective, the aim of the Special Issue is to give the opportunity to present existing and new devices. The issue will also focus on the advantages of fractional order circuits and systems realized with a fractional order element.