



Fractional Order Systems: Modeling and Control Applications (World Scientific Series on Nonlinear Science Series A) (World Scientific Series in Nonlinear Science, Series a)

By Riccardo Caponetto, Giovanni Dongola, Luigi Fortuna, Ivo Petras

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This book aims to propose the implementation and application of Fractional Order Systems (FOS). It is well known that FOS can be utilized in control applications and systems modeling, and their effectiveness has been proven in many theoretical works and simulation routines. A further and mandatory step for FOS real world utilization is their hardware implementation and applications on real systems modeling. With this viewpoint, introductory chapters are included on the definition of stability region of Fractional Order PID Controller and Chaotic FOS, followed by the practical implementation based on Microcontroller, Field Programmable Gate Array, Field Programmable Analog Array and Switched Capacitor. Another section is dedicated to FO modeling of Ionic Polymeric Metal Composite (IPMC). This new material will have applications in robotics, aerospace and biomedicine.

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Editorial Review

From the Inside Flap

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