



# CONTROLO'2022

## 15TH APCA INTERNATIONAL CONFERENCE ON AUTOMATIC CONTROL AND SOFT COMPUTING

**JULY 6-8, 2022, CAPARICA, LISBON REGION, PORTUGAL**

[HTTPS://CONTROLO2022.DEEC.FCT.UNL.PT/](https://controlo2022.deec.fct.unl.pt/)

### Special Session on “Fractional Signals and Systems”

#### Organized by

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## Call for Papers

**Brief description of the theme.** The Fractional Calculus (FC) generalises the traditional calculus, leading to similar concepts and tools, but with wider applicability. By allowing derivative and integral operations of arbitrary order, FC allows to define fractional systems characterised by having amplitude Bode diagrams decreasing/increasing non integer multiples of 20 dB/dec. We know already that fractional-order systems can describe the dynamical behaviour of materials and processes over large time and frequency scales with very concise and computable models. The concepts are being extended to the development of filter design methods, and signals/systems modelling/identification.

The main objective of this track is to put people from different sides discussing and to help them understanding their distinct viewpoints.

**Topics of interest include, but are not limited to:** Continuous and discrete fractional derivative definitions, Fractional systems modeling and identification, Filter design, Biomedical signal processing (ECG, EEG, Epilepsy, Sleep classification, Spindles, etc.), Time-series analysis, Fractional electrical circuits, New fractional devices for signal processing, Fractional control systems.