

Workshop on Nonlinear Functional Analysis and Its Applications

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Nonlinear Fractional Differential Equations

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Abstract

In this talk, we will present some general aspects of fractional calculus and nonlinear differential equations of fractional order. We use, as a representative example, the fractional logistic differential equation.

We then comment some mathematical models using fractional derivatives including compartmental fractional models of the COVID-19 pandemic.

References:

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- F. Ndairou, I. Area, J.J. Nieto, C.J. Silva, D.F.M. Torres, Fractional model of COVID-19 applied to Galicia, Spain and Portugal. Chaos, Solitons and Fractals 144 (2021), 110652.
- J.J. Nieto Solution of a fractional logistic ordinary differential equation. Applied Mathematics Letters 123 (2022), 107568.
- S. Samko, A.A. Kilbas, O. Marichev, Fractional Integrals and Derivatives; Taylor & Francis, Abingdon, UK, 1993.