

Título: FRACTIONAL DIFFERENTIAL EQUATIONS

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Resumen: Fractional calculus, the branch of mathematics dealing with derivatives and integrals of non-integer order, began as a mere mathematical curiosity during the time of Leibniz but through the years has developed into a very dynamic field of research. Famous mathematicians such as Riemann, Liouville, Grunwald, Euler, Lagrange, Caputo and others laid the foundation of the modern theory thus paving the way for fractional calculus to enter mainstream mathematics. At present, this field of study is still developing rapidly. New concepts and ideas such as the Caputo-Fabrizio formulation for example, have emerged and applications in such varied fields as viscoelasticity, fluid flow, rheology, etc., have arisen. In this thesis we will address new problems and issues within this area.