

Analysis and numerical approximation of distributed order problems arising in viscoelasticity and anomalous diffusion processes

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In this talk we are concerned with the numerical solution of distributed order differential problems arising in the viscoelasticity theory and in the modeling of anomalous diffusion processes. Focusing us on the smoothness properties of the solution, we explore and discuss the use of non-uniform meshes in the development of efficient finite difference schemes for the numerical solution of the considered problems. The stability and the convergence analysis is provided and some numerical examples are presented to illustrate the obtained theoretical results.