

Scale dynamics and modelling

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The talk is based on the joint work with Frédéric Pierret.

Session: 8. Dynamic Systems with Fractional and Time Scale Derivatives

In this talk, we present an approach to modelling in various domains (Physics, Biology, etc) using the formalism of scale dynamics. Roughly speaking a scale dynamics is the data of a (partial) differential equation together with a law describing the scale behaviour. The main problem with respect to these new object is to determine, fixing a scale law, what is the associated continuous model. These objects can be used to encoded various phenomenon including "stochastic" or "fractional" like behaviours. A particular attention will be devoted to scale invariant systems and in particular to Lagrangian and Hamiltonian scale invariant systems. An example, passing from the fundamental equation of Newton to the Schrödinger equation will be given.