

A class of integro-differential equations and applications

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I am going to present a class of integro-differential equations that may be related to processes in which the interaction between the entities (of a system) are essential. Such a level can be referred to as a mesoscopic scale. The relationships with the corresponding microscopic scale (in terms of the Markov jump processes) and macroscopic scale (in terms of the ODEs or PDEs) will be discussed. Some important applications, like the DNA denaturation and the tendon healing process, will be shown.