

PDE tools to study evolution in spatially structured populations

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ABSTRACT

Evolutionary plays a role in chronicle infections, epidemics or cancer. Many theoretical tools exist to understand evolutionary phenomena, but most of them fail when the spatial structure of the population has to be taken into account. A way to deal with such situations is to use kinetic equations, that have been used successfully in other fields (fluid mechanics, chemistry...). The models can then be written quite easily, but numerical simulations are time consuming, and qualitative analysis is challenging. We show however that kinetic equations can be useful to study evolution in spatially structured populations.