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Stochastic models of multi-level Darwinian populations

Abstract

Many evolutionary systems are multi-level. This means that we can identify a Darwinian population at one level, but also a second at a higher level composed of the lower level entities. A particularly important example of this is the transition from unicellular to multicellular organisms. I will discuss some recent work on developing stochastic models of these systems, in particular looking at the ecological conditions needed to create these two interacting populations and how these in turn affect their evolutionary properties.