BIOCHEMICAL CHIRAL SELECTION IN THE PRESENCE OF INSTABILITIES, CHAOS AND NOISE

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Models of dynamical systems exhibiting competitive selection have attracted much attention in the context of ecology, evolution, cellular differentiation and autocatalytic chemical reactions. In this work, a mathematical model is constructed to illustrate that an arbitrarily small difference in the rate constants for parallel autocatalytic reactions involving L and D isomers, are sufficient to cause chiral selection in biochemical evolution. It is shown that selection is not suppressed by instabilities leading to chaos or heavy external noise.