RÉSUMÉ

In 1987, Stuart Kauffman and Simon Levin introduced the NK model motivated by the problem of the evolution of DNA sequences.

To each sequence of $0 - 1$ bits of length N, they assigned a fitness as a sum of (random) quantities that depend only on bits observed in a sliding window of length $K + 1$.

The random map obtained in this way is called the fitness landscape. When $0 < K < N - 1$, the fitness landscape is quite complicated and has many local maxima. Its properties have been extensively investigated by simulation but little is known rigorously. In joint works with Rick Durrett, and with Robin Pemantle, we study some qualitative and quantitative properties of the number of local maxima, their heigths, and the height of the global maximum.