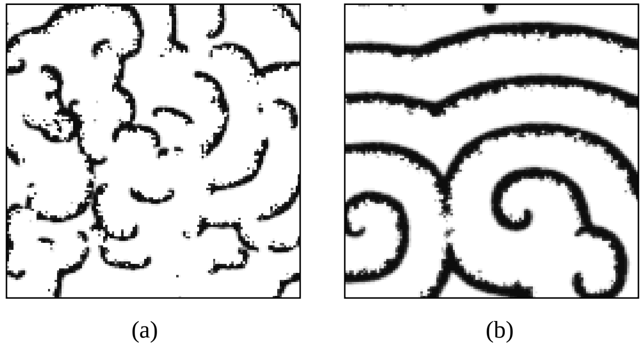

Fig. 1. – Spatial distribution of the activator at $t = 100$ time units in the presence of noise: (a) complex spiral dynamics for $D = 0.80$ and (b) spiral meandering for $D = 2.08$. Noise strength is given by $\sigma = 0.28$ in the two cases.

disappeared through the boundaries of the system. Therefore, the deterministic model either displays stable spiral waves or decays to the quiescent state after a short transient, depending on the initial conditions considered.

The situation is radically different in the presence of parametric noise. Two snapshots of the spatial distribution of the activator variable $u_i(t)$ taken at $t = 100$ time units are given in fig. 1, for two different values of the spatial coupling $D > D_{\rm th}$. In both cases the system evolves from random initial conditions. Close to the propagation threshold (fig. 1a) the system exhibits a long-lived complex state which closely resembles the spiral-chaos regime found in deterministic systems with more complicated local dynamics [10]. This state has been observed to survive for at least $t = 3000$ time units. Further above threshold (fig. 1b), the complexity of the dynamical state is reduced, consisting only of a small number of spirals, either single or coupled in pairs (as in the figure), whose core undergoes a slow meandering (drifting of spirals due to noise has already been observed and characterised in the complex Ginzburg-Landau

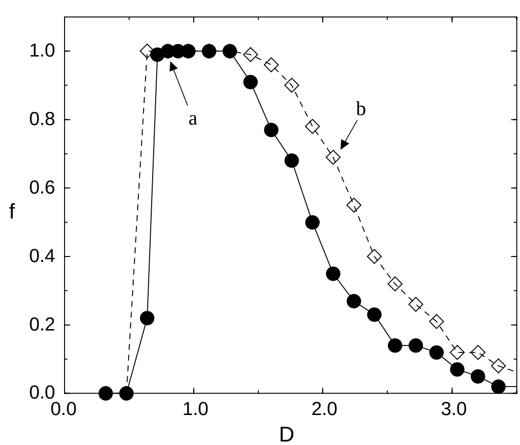

Fig. 2. – Fraction f of realizations (out of 100) that do not decay to the rest state after a reference time $t_{\rm ref} = 100$, for increasing values of the diffusion coefficient D. Two noise strengths are considered: $\sigma = 0.28$ (empty diamonds) and $\sigma = 0.40$ (solid circles). Labels a and b correspond to the non-decaying situations of fig. 1.