

**Liggett, Thomas M.**

**Spatially inhomogeneous contact processes.** (English) Zbl 0747.60096

Spatial stochastic processes, Festschr. in Honor of Ted Harris 70th Birthday, Prog. Probab. 19, 105-140 (1991).

[For the entire collection see [Zbl 0733.00026](#).]

Author's summary: A one-dimensional spatially inhomogeneous contact process is a Markov process in  $\{0, 1\}^Z$ , where  $Z$  is the set of integers, which has the following transitions:

$$\begin{aligned} 1 &\rightarrow 0 \text{ at site } k \text{ at rate } \delta(k), & \text{and} \\ 0 &\rightarrow 1 \text{ at site } k \text{ at rate } \rho(k)\eta(k+1) + \lambda(k)\eta(k-1), \end{aligned}$$

where  $\delta(k) > 0$ ,  $\rho(k) \geq 0$ ,  $\lambda(k) \geq 0$ , and  $\eta \in \{0, 1\}^Z$  is the current configuration. If  $\delta(k) \equiv 1$  and  $\rho(k) \equiv \lambda(k) \equiv \lambda$ , this is the basic contact process which was first studied by Harris in 1974. If  $\{(\delta(k), \rho(k), \lambda(k)), k \in Z\}$  is chosen randomly in a stationary ergodic manner, it is natural to call this a contact process in a random environment. In this paper, we present types of results, giving sufficient conditions (a) for extinction of the process, (b) for survival of the process, and (c) for the process to have at most four extremal invariant measures.

Reviewer: [G.Grimmett \(Bristol\)](#)

**MSC:**

[60K35](#) Interacting random processes; statistical mechanics type models; percolation theory Cited in 7 Documents

**Keywords:**

[contact process](#); [contact process in a random environment](#); [extremal invariant measures](#)