

van den Berg, J.; Tóth, B.

A signal-recovery system: asymptotic properties, and construction of an infinite-volume process. (English) Zbl 1058.60093

Stochastic Processes Appl. 96, No. 2, 177-190 (2001).

Summary: We consider a linear sequence of ‘nodes’, each of which can be in state 0 (‘off’) or 1 (‘on’). Signals from outside are sent to the rightmost node and travel instantaneously as far as possible to the left along nodes which are ‘on’. These nodes are immediately switched off, and become on again after a recovery time. The recovery times are independent exponentially distributed random variables. We present results for finite systems and use some of these results to construct an infinite-volume process (with signals ‘coming from infinity’), which has some peculiar properties. This construction is related to a question by D. Aldous and we hope that it sheds some light on, and stimulates further investigation of, that question.

MSC:

- 60K35** Interacting random processes; statistical mechanics type models; percolation theory
- 82C43** Time-dependent percolation in statistical mechanics
- 92D25** Population dynamics (general)

Cited in **6** Documents

Keywords:

on-off sequence; long-range interactions; infinite-volume dynamics; 1-D time-dependent percolation

Full Text: [DOI](#)

References:

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