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Time-Space analysis on spreading processes in small-world networks LIN XUE, ZHIHUI ZHU, QI ZHANG, PENG ZHANG, Department of Physics, Nanjing University, China — We used time-domain statistical analysis to study the spreading processes on one-dimensional small-world networks. The relationships between the saturated infection rate and both spatial and temporal parameters of the system were studied. We found that the saturated infection rate increase exponentially with the mean degree and linearly with the ratio of the shorts cuts while it is almost independent of the size of the network when the network is large enough, which could not be observed without considering the spatial structure of the model. The infection probability and the active period also influence the saturated infection rate. The obtained results may provide insights into a prognosis of a spreading process in closed system especially for epidemic control.

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