

Study of stochastic processes with time-dependent transition probabilities

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In this work we show applications in the evolution of probabilistic trajectories when the transition probabilities acquire a stationary character which is interpreted as “probabilistic geodesics”.

The evolution of the stochastic process type Markov chain is described when transitions of probability are functions of time. The structure of the process is modeled with a stochastic matrix whose convergence generates stationary trajectories. The model is implemented to the synthesis of optical modes allowing to describe the processes of entanglement and revival of the fields themselves. The fields evolution is describing by the entropy calculus. Computational simulations are shown as results.

Considering families of trajectories, morphological variability of optical fields is described, generating coherence and partial polarization processes.

References

[1] Coleman, R., 1974: *Stochastic Processes*. Springer, Berlin.

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