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Chaos in multiplicative systems

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The goal of the paper is chaos examination in multiplicative systems. The paper collects results of numerical simulations as well as presentation of methods applicable in the case of multiplicative systems. Chaos examination concerns one-dimensional multiplicative version of logistic equation and multi-dimensional nonlinear system described with multiplicative derivatives. The classical Lorenz system transformed into multiplicative version was chosen for analysis of stability and chaotic behaviour.

Keywords: multiplicative calculus, logistic equation, the Lorenz system, Runge-Kutta method, Lyapunov exponent.