

dynamical systems in population pdf

Abstract: We consider an attraction-repulsion chemotaxis model coupled with the Navier-Stokes system. This model describes the interaction between a type of cells (e.g., bacteria), which proliferate following a logistic law, and two chemical signals produced by the cells themselves that degraded at a constant rate.

American Institute of Mathematical Sciences

Abstract: S-systems are simple examples of power-law dynamical systems (polynomial systems with real exponents). For planar S-systems, we study global stability of the unique positive equilibrium and solve the center problem.

American Institute of Mathematical Sciences

Chaos theory is a branch of mathematics focusing on the behavior of dynamical systems that are highly sensitive to initial conditions. "Chaos" is an interdisciplinary theory stating that within the apparent randomness of chaotic complex systems, there are underlying patterns, constant feedback loops, repetition, self-similarity, fractals, self-organization, and reliance on programming at the ...

Chaos theory - Wikipedia

The logistic map is a polynomial mapping (equivalently, recurrence relation) of degree 2, often cited as an archetypal example of how complex, chaotic behaviour can arise from very simple non-linear dynamical equations. The map was popularized in a 1976 paper by the biologist Robert May, in part as a discrete-time demographic model analogous to the logistic equation first created by Pierre ...

Logistic map - Wikipedia

Official quarterly research journal of the Society for Chaos Theory in Psychology & Life Sciences since 1997. NDPLS publishes original theory and empirical research on attractors, bifurcations, chaos, fractals, solitons, catastrophes, self-organization processes and emergence, power law distributions, cellular automata, agent-based models, genetic algorithms, agent-based models, social and ...

Nonlinear Dynamics, Psychology, and Life Sciences

H. Soh, Y. Baek, M. Ha and H. Jeong, "Effects of a local defect on one-dimensional nonlinear surface growth" Phys. Rev. E 95 042123 (2017) [] ; K. Chung, Y. Baek, M. Ha, and H. Jeong "Universality class of generalized epidemic process on random networks" Phys. Rev. E 93 052304 (2016) [] ; B. Lee, D. Kim, D. Kim, and H. Jeong "N-gram Web Service and Stylometric Analysis on Korean Historical ...

Complex Systems and Statistical Physics Lab. Hawoong Jeong

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7 Getting Started - Scicos

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3. HANDY. As indicated above, Human And Nature DYnamics (HANDY) was originally built based on the predator-prey model. We can think of the human population as the "predator", while nature (the natural resources of the surrounding environment) can be taken as the "prey", depleted by humans.

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