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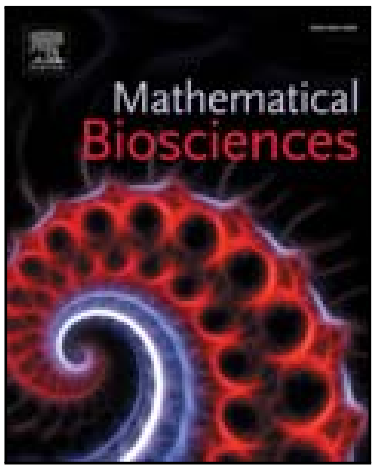

Spontaneous symmetry breaking of population: Stochastic Lotka-Volterra model for competition among two similar preys and predators

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Highlights

- An extended Lotka-Volterra model with the prey and predator populations duplicated was proposed;
- Stochastic and deterministic methods were considered to study the extended model starting from symmetric state;
- Asymmetric states are only reached spontaneously through stochastic simulations, revealing the dependence of fluctuations in the solutions;
- The deterministic method can just describe roughly the symmetry breaking if population excess is considered;

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