Existence of periodic orbits for switching networks via Conley theory.

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A switching network is a N-dimensional system of ordinary differential equations generated by a regulatory network $\mathbf{RN}$ with N nodes. Mathematically speaking, a regulatory network is a directed graph where the nodes (vertices) indicate the species, and the edges indicate the activation or repression of production of one species by another. The repressilator model consists of three nodes and three edges. We used Conley theory and Filippov systems to prove that there exists one combination of parameters, for which the repressilator model admits periodic orbits.

Referências

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