

Bifurcations and Chaos in Linearly Coupled FitzHugh-Nagumo Systems

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SUMMARY

The FitzHugh-Nagumo equations are a very well-known example of a family of dynamical systems exhibiting a Hopf bifurcation. In this talk, we consider a model (see [3]) consisting of two linearly coupled FitzHugh-Nagumo systems. Inspired by [1], we propose to explore the impact of additional interactions between variables. In this new scenario, we will study the existence of codimension-two Hopf-Hopf bifurcations and also explore how chaotic behaviors are unfolded. Among other phenomenon, we put special attention to the passages through interior crises, where a chaotic attractor undergoes a discontinuous change of size (see [2]).

Keywords: Dynamical systems, Coupled dynamics, Chaos.

AMS Classification: 37D45, 37G35, 37N25

References

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