Fast-slow analysis of dynamical systems and its applications to the study of biological models

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SUMMARY

In the field of dynamical systems, it is common to face problems for which the time scales of their variables are vastly different. These problems are usually tackled by separating the evolutions and characteristics of fast and slow variables. The analysis of the resulting situations helps greatly in the characterisation of dynamics.

In this talk, the basic elements of fast-slow analysis of dynamical systems will be presented, such as singular perturbation theory, critical manifolds and Fenichel's theory. As an application of these tools, the fast-slow analysis of relevant models in the study of biological processes will be presented.

Keywords: Fast-slow analysis, singular perturbation theory, biological models

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References

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