

# Multiple timescales in models of intracellular calcium dynamics

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## **Abstract**

Calcium is crucial for a huge range of cellular processes. It acts as an intracellular messenger, relaying information within cells via oscillations in calcium concentration to regulate cell activity. A key feature of intracellular calcium models is that they have multiple timescales. Using geometric singular perturbation techniques we can exploit this separation in timescales to analyse the models. This analysis helps us to explain the observed dynamics, including complicated oscillations known as mixed-mode oscillations.