

# E-convergence to the quasi-steady-state approximation in systems of chemical reactions

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We give a simple proof of effective limit equations for systems of ODEs modeling chemical reactions with mass-action kinetics on different time scales. The limit dynamics of some reactions taking place at an infinite rate, known as the quasi-steady-state approximation, can be considered either as a lower-dimensional system of ODEs or as a full-dimensional system including an algebraic constraint.

We show that the entropic gradient structure of the system carries over to the limit, in the sense that the constraint is enforced by a pseudometric on the full space.

## REFERENCES

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