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Chemical Kinetics of Consecutive and Parallel Reactions Both with a Reversible First Step

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Abstract

We solve the rate equations analytically for the first n -order consecutive reaction and the

corresponding parallel reaction both with a reversible first step. Results of the consecutive reaction, especially, can be used to determine explicitly the product concentration of the unimolecular decomposition and of the enzyme reaction which has hitherto been calculated by approximation. In addition, we indicate how we specify a certain reaction to be consecutive or parallel by comparing experimental data with theory. We also show that rate constants for the reactions are found from the various time derivatives of concentrations.

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