

# An averaging technique for kinetic equations

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## Abstract

In this talk, we develop a new strategy aimed at obtaining high-order asymptotic models for kinetic equations. The technique relies upon averaging theory for ordinary differential equations, in particular normal form expansions in the vanishing parameter. Noteworthy, the result we state here also allows for the complete recovery of the exact solution from the asymptotic model. This is done by solving a companion transport equation that stems naturally from the change of variables underlying high-order averaging. Eventually, we apply our technique to a few equations borrowed from the literature and re-derive within this setting the asymptotic models already documented.

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