A multi-fidelity approximation for a class of kinetic models with uncertainties

Liu LIU
Department of Mathematics, Chinese University of Hong Kong

Abstract : We use the multi-fidelity stochastic collocation method to solve a class of kinetic models with random parameters and multiple scalings. We use the Boltzmann, BGK and linear transport equations as examples to illustrate our idea. A formal uniform in Knudsen number error estimates, practical error bound and numerical experiments will be presented to demonstrate the accuracy and efficiency of our proposed methods.