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A hybrid discontinuous Galerkin scheme for multi-scale kinetic equations

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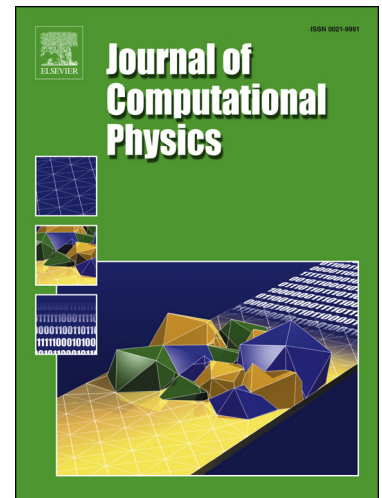
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Highlights

- We would like to submit our paper entitled “A Hybrid Discontinuous Galerkin Scheme for Multi-scale Kinetic Equations” for publication in Journal of Computational Physics.
- Research highlights The aim is to develop a multi-dimensional hybrid discontinuous Galerkin method for multi-scale kinetic equations.
- In this paper we propose a compact Discontinuous Galerkin method for both kinetic and fluid equations and formally show that the macroscopic flux corresponds to the kinetic flux when (ϵ is related to the Knudsen number).
- This approach allows us to get accurate results for time evolution and stationary. For instance, we perform several numerical simulations for time evolution and stationary problems in order to capture some physical phenomena as Knudsen layers which cannot be observed by applying directly classical fluid solvers with standard boundary conditions.

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