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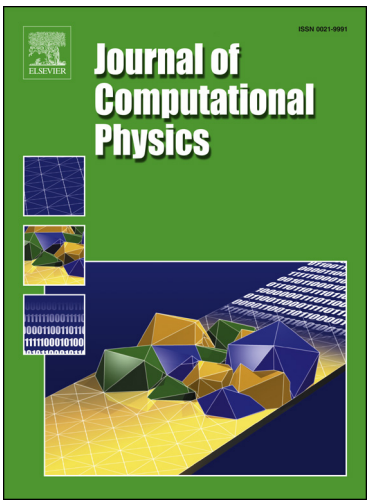

A fully implicit, conservative, non-linear, electromagnetic hybrid particle-ion/fluid-electron algorithm

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Highlights

- A novel, conservative particle-in-cell based scheme for the hybrid (kinetic ion and fluid electron) plasma model.
- Extended for multi-scale simulations using sub-cycling and orbit-averaging of kinetic ions.
- Numerical simulations show no indication of finite-grid instability for cold drifting ion beam through spatial mesh, that is present in non-conservative algorithms.

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