Abstract Submitted
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Two-fluid plasma modeling using mixed finite element methods
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system is modeled through the simultaneous use of the continuous (CG) and the
discontinuous Galerkin (DG) finite element methods to represent the different fluids.
In this application the electron fluid is modeled using the CG method while the ion
fluid is modeled using DG. This method is valid in plasma regimes where the electron
fluid ex- periences no shocks. Similarly, the Maxwell equations can also be modeled
using continuous methods since shocks are also not expected in the field vari- ables.
This approach should allow for better coupling between the fluxes and the source
terms since these are unsplit methods. Additionally, because the electron fluid and
electromagnetic fields are modeled using CG, there is no use of limiters, which should
make those systems more amenable to implicit time-stepping.

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