

A semi-Lagrangian scheme for the numerical solution of convection-diffusion problems

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Abstract

We consider semi-Lagrangian methods for spectral element discretizations of convection-diffusion equations. The superiority of semi-Lagrangian schemes compared to Eulerian schemes in dealing with numerical dispersion will be illustrated in few examples. A major drawback for these methods is their high computational cost due to the need of performing interpolation operations on the space domain. In this talk we discuss a new implementation strategy which reduces the number of interpolation steps.