

CARTESIAN GRID METHOD FOR SIMULATING FLUID-SOLID DYNAMICAL AND/OR THERMAL INTERACTIONS

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ABSTRACT

Cartesian grid method has been drawing researcher's attention for a long time in the field of computational fluid dynamics. Compared with the body-fitted grid method, the advantages of the Cartesian grid method include first the elimination of the effort in grid generation and second the annihilation of discretization errors due to mesh skewness. The first is especially prominent in moving interface problems.

Because mesh lines are in general not fitted with the solid boundary, there are two major categories of the Cartesian grid method: the immersed boundary method^[1-4] (IBM) and the cut-cell method^[5-8] (CCM), according to the way implementing the boundary conditions on the fluid-solid interface.

This minisymposium invites contributions of original research on the development and applications of the Cartesian grid method (including but not limited to the above two categories) for physical problems where the fluid flow dynamically and/or thermally interacts with solid bodies.

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