

Abstract Submitted  
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**A 3D Immersed Interface Method** SHENG XU, JANE WANG, Cornell University — We present the 3D implementation of an immersed interface method (IIM) which is capable of simulating multiple moving rigid or flexible objects in an unsteady fluid. The IIM is a variant of the immersed boundary method, which solves the Naviers-Stokes equations subject to singular force. The difference between the two methods is that the IIM handles the singular force in terms of the jump conditions of flow quantities as opposed to approximating the Dirac-delta function by grid-dependent functions in the original immersed boundary method. This gives the IIM its advantage to resolve boundaries more accurately. We present our recent numerical results of 3D flow simulation using the IIM and also discuss a method for constructing the singular force in the case of prescribed boundary motions.

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