

## **Sharp Surface Tension Force for Level-Set Method in Multiphase Flow Modeling**

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### **Abstract**

A new algorithm suitable for level-set method in multiphase flow modeling is introduced to calculate the magnitude of the sharp surface tension force by evaluating the interfacial area contained within a cell located on the interface. This algorithm is successfully tested by measuring the area of a three dimensional closed geometries. To demonstrate the effects the proposed algorithm has on a typical interface capturing method, a static droplet was simulated using level-set method. The results are presented before and after applying the algorithm. The enhanced accuracy of the calculated pressure jump across the interface, the more uniform pressure distribution in the vicinity of the interface, and the smoothness of the interface indicate the effectiveness of the algorithm.

Key words: Level-set method; Two-phase flow; Sharp surface force

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