

Abstract Submitted  
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**A conservative volume of fluid method for general grids in three dimensions**<sup>1</sup> CHRISTOPHER IVEY, PARVIZ MOIN, Center for Turbulence Research, Stanford University — A conservative advection scheme based on the use of edge-matched flux polyhedra to integrate the volume fraction evolution equation on general grids is presented. The algorithm prevents the formation of over/undershoots of the volume fraction by enforcing that the flux polyhedra do not over/underlap, removing the need for unphysical and inaccurate redistribution algorithms. The advection scheme is formally first order in volume fraction due to its upwinding nature; however, kinematic test cases performed on grids of varying structure and density demonstrate that the accuracy is between first and second order and nominally compares well with contemporary algorithms.

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