A One-Dimensional Conservative Method to Track Contact Discontinuities in a Compressible Media

CAROLINE GATTI-BONO, Lawrence Livermore National Laboratory — We present a one-dimensional algorithm to track an interface between two compressible media. The method can readily be extended to multiple dimensions. The moving interface cuts out time-varying control volumes and a consistent finite-volume discretization is derived by applying the divergence theorem in space-time. The method is fully conservative, even at the discontinuity, and the truncation error is expected to be first-order at the boundary between the two fluids, which is one order higher than conventional methods. Classical benchmark results and convergence studies are presented.

1This work was performed under the auspices of the U.S. Department of Energy by the University of California, Lawrence Livermore National Laboratory under contract No. W-7405-Eng-48. UCRL-ABS-223331.

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