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HIGH-PRECISION CURVATURE CALCULATIONS ON UNSTRUCTURED GRIDS BY THE HEIGHT FUNCTIONS TECHNIQUE

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Abstract.

The curvature calculation in the context of the Volume of Fluid method is a crucial step in order to accurately solve multiphase problems with dominant surface-tension forces. Most of techniques fail in obtaining mesh convergence, even increasing the parasitical currents due to wrong calculated curvatures. This work presents the application of the height functions technique to problems discretized with non-structured meshes. The implementation is tested showing second order convergence rate for the interphase normals and first convergence rate for the curvatures. Additional tests are presented solving multiphase flow problems by the Volume of Fluid method.