A NEW NONLINEAR CELL-AVERAGE SUBDIVISION SCHEMES ELIMINATING THE GIBBS PHENOMENON

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Abstract

We present a new nonlinear cell-average subdivision scheme. We start with a family of linear subdivision schemes based on an approximate three cells. We rewrite the schemes in order to adapt the algorithms to the presence of discontinuities. We perform theoretical analysis that includes: Convergence, stability, order of approximation and elimination of Gibbs oscillations. Finally, we present some numerical comparisons and conclusions.