



Energy Conservation of Second-Order Mimetic Difference Schemes for the 1D Advection Equation

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Now, we plan write discrete analogs of (5) according to mimetic difference schemes lever-

Using the boundary condition (2), and the discrete energy definition, one verifies that

$$E(T) + \frac{1}{h} \int_0^T U^2(1, t) dt = E(0) + \frac{1}{h} \int_0^T g^2(t) dt,$$

i.e., the energy at T plus the energy lost at the right boundary matches the initial energy plus the energy gained at the left boundary.

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