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Sub-grid properties and artificial viscous stresses in staggered-mesh schemes

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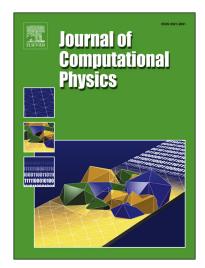
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Highlights

- Ringing in a finite difference scheme is explained using its dispersion relation.
 Shock formation for Burgers equation is related to the turbulent inertial range.
 An artificial viscosity is found by analogy to Large Eddy Simulation of turbulence.

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