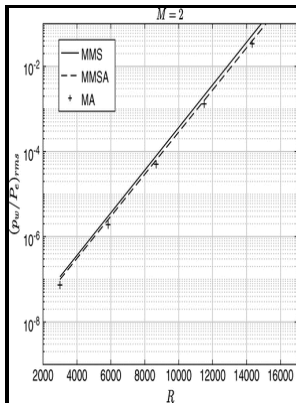


Simulation of boundary-layer transition: receptivity to spike stage

Institute for Computer Applications in Science and Engineering - Transition Modeling Based on the PSE



Description: -

- Boundary layer transitionSimulation of boundary-layer transition: receptivity to spike stage

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Evolution of the ring

Compact finite difference schemes with spectral-like resolution. The accuracy and stability of the new high-order numerical schemes is tested by numerical simulations of the linear wave equation and two-dimensional incompressible flat plate boundary layer flows. The PSE equations remain valid when the disturbances reach finite amplitudes, and can be applied to flows that have slowly changing properties in the streamwise direction, such as, for example, diverging streamlines, temperature, and chemical composition.

Direct numerical simulation of transition to turbulence in a supersonic boundary layer

A Fast Fourier Transform FFT is used to decompose the perturbation and to study the evolution of perturbations at different frequencies. Based on numerical and experimental data, three distinct instabilities in the BoLT flowfield are identified.

Receptivity of a Hypersonic Blunt Cone: Role of Disturbances in Entropy Layer

Evolution of a curved vortex filament into a vortex ring.

Physical Mechanisms of Laminar

Biomechanics — Motion, flow, stress and growth.

Transition Modeling Based on the PSE

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Physical Mechanisms of Laminar

When the velocity was increased, the layer broke up at a given point and diffused throughout the fluid's cross-section. Khotyanovskii, Application of higher-order schemes at the simulation of unsteady supersonic flows, Matem. Fasel, Direct numerical simulation of investigation of complete transition to turbulence via oblique breakdown at Mach 3, J.

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