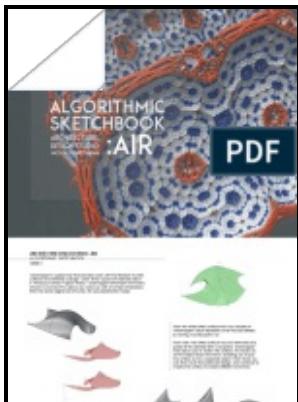


# Assessment of the adaptive unstructured tetrahedral grid, Euler flow solver code FELISA

Ames Research Center - potential flow solver: Topics by Science.gov



Description: -

- India -- Religion  
Euler equations of motion  
Computational gridsassessment of the adaptive unstructured tetrahedral grid, Euler flow solver code FELISA  
-assessment of the adaptive unstructured tetrahedral grid, Euler flow solver code FELISA

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## Store Separation Dynamics Using Grid

Steady and unsteady transonic results, obtained using spatial adaption for the NACA 0012 airfoil, are shown to be of high spatial accuracy, primarily in that the shock waves are very sharply captured.

## Larry Erickson

The results for two test flows over a flat plate with different levels of free stream turbulence intensity are reported.

## Store Separation Dynamics Using Grid

The solver is used as part of a finite-volume code and is demonstrated on two test cases. A number of flow problems are presented to verify the implementation more of the developed scheme. For the lid driven cavity flow, the present numerical results compare more favorably with the measured data than those obtained using a formally third order accurate quadratic upwind interpolation scheme.

## Adaptive mesh generation for viscous flows using delaunay triangulation

The test case for the workshop consists of a wing-body configuration at transonic flow conditions.

## potential flow solver: Topics by Science.gov

The Herschel-Bulkley parameters are modeled as a function of water content, volumetric solid concentration of the mixture, clay content and its mineral composition Coussot et al. Solutions of Euler's equations for these meshes are obtained at low angle-of-attack, transonic conditions.

## An assessment of the adaptive unstructured tetrahedral grid, Euler Flow Solver Code FELISA

In the course of this investigation much attention has been paid to efficient domain decomposition strategies for ADI-type algorithms. The assumption is that as the blade sections encounter a wake, the actual angles of attack vary in a sinusoidal manner through the wake, thus each blade is exposed to an unsteady stream oscillating about a mean value at a certain reduced frequency.

#### **Summary of the 2008 NASA Fundamental Aeronautics Program Sonic Boom Prediction Workshop**

The PFA model predicts theoretical values for a bubble terminal velocity for single-mode compressible RTI, dependent upon the Atwood A and Mach M numbers, which is a parameter that measures both the strength of the stratification and intrinsic compressibility. The relative motion of the grid systems for the rotorstator interaction was obtained using overact grid techniques. Abstract A three-dimensional solution-adaptive Euler flow solver for unstructured tetrahedral meshes is assessed, and the accuracy and efficiency of the method for predicting sonic boom pressure signatures about simple generic models are demonstrated.

#### **Summary of the 2008 NASA Fundamental Aeronautics Program Sonic Boom Prediction Workshop**

This boundary condition methodology is designed to automatically switch between a solve-to-the-wall and a wall-matching-function boundary condition based on the local  $y^+$  of the 1st cell center off the wall. The inviscid fluxes are computed using an upwind algorithm and the solution is advanced in time using a backward-Euler time-stepping scheme. For illustration, we couple an IB-based unsteady Reynolds Averaged Navier Stokes uRANS simulator with a depth-integrated long-wave solver for the application of slug development with turbulent gas and laminar liquid.

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