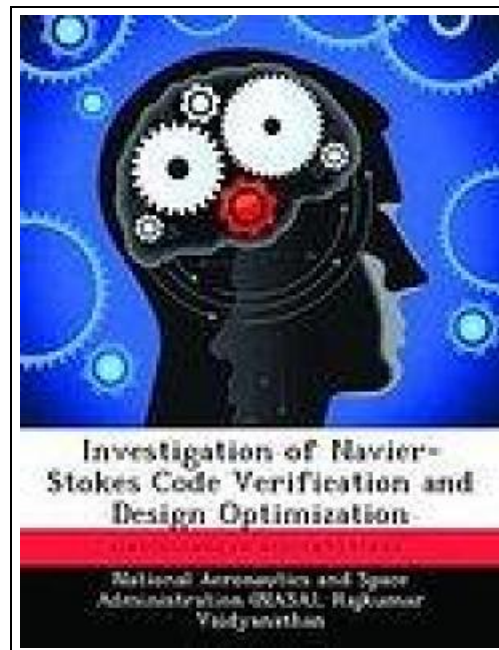


Investigation of Navier-Stokes Code Verification and Design Optimization



Filesize: 6.05 MB

Reviews

It is great and fantastic. I actually have read and so i am certain that i am going to going to go through once again yet again in the future. I realized this ebook from my dad and i encouraged this book to find out.

(Dr. Kayden Gerlach)

INVESTIGATION OF NAVIER-STOKES CODE VERIFICATION AND DESIGN OPTIMIZATION



To read **Investigation of Navier-Stokes Code Verification and Design Optimization** PDF, please refer to the button below and download the file or have access to other information which might be relevant to INVESTIGATION OF NAVIER-STOKES CODE VERIFICATION AND DESIGN OPTIMIZATION book.

Biblioscholar Mrz 2013, 2013. Taschenbuch. Book Condition: Neu. 246x189x8 mm. This item is printed on demand - Print on Demand Neuware - With rapid progress made in employing computational techniques for various complex Navier-Stokes fluid flow problems, design optimization problems traditionally based on empirical formulations and experiments are now being addressed with the aid of computational fluid dynamics (CFD). To be able to carry out an effective CFD-based optimization study, it is essential that the uncertainty and appropriate confidence limits of the CFD solutions be quantified over the chosen design space. The present dissertation investigates the issues related to code verification, surrogate model-based optimization and sensitivity evaluation. For Navier-Stokes (NS) CFD code verification a least square extrapolation (LSE) method is assessed. This method projects numerically computed NS solutions from multiple, coarser base grids onto a finer grid and improves solution accuracy by minimizing the residual of the discretized NS equations over the projected grid. In this dissertation, the finite volume (FV) formulation is focused on. The interplay between the xi concepts and the outcome of LSE, and the effects of solution gradients and singularities, nonlinear physics, and coupling of flow variables on the effectiveness of LSE are investigated. A CFD-based design optimization of a single element liquid rocket injector is conducted with surrogate models developed using response surface methodology (RSM) based on CFD solutions. The computational model consists of the NS equations, finite rate chemistry, and the k-6 turbulence closure. With the aid of these surrogate models, sensitivity and trade-off analyses are carried out for the injector design whose geometry (hydrogen flow angle, hydrogen and oxygen flow areas and oxygen post tip thickness) is optimized to attain desirable goals in performance (combustion length) and life/survivability (the maximum temperatures on the oxidizer post tip and injector face and a combustion chamber...



[Read Investigation of Navier-Stokes Code Verification and Design Optimization Online](#)



[Download PDF Investigation of Navier-Stokes Code Verification and Design Optimization](#)

Related Books



[PDF] Psychologisches Testverfahren
Click the hyperlink beneath to download "Psychologisches Testverfahren" PDF document.
[Read ePub](#)
»



[PDF] Programming in D
Click the hyperlink beneath to download "Programming in D" PDF document.
[Read ePub](#)
»



[PDF] Kingfisher Readers: Romans (Level 3: Reading Alone with Some Help) (Unabridged)
Click the hyperlink beneath to download "Kingfisher Readers: Romans (Level 3: Reading Alone with Some Help) (Unabridged)" PDF document.
[Read ePub](#)
»



[PDF] Kingfisher Readers: Volcanoes (Level 3: Reading Alone with Some Help) (Unabridged)
Click the hyperlink beneath to download "Kingfisher Readers: Volcanoes (Level 3: Reading Alone with Some Help) (Unabridged)" PDF document.
[Read ePub](#)
»



[PDF] New KS2 English SAT Buster 10-Minute Tests: 2016 SATs & Beyond
Click the hyperlink beneath to download "New KS2 English SAT Buster 10-Minute Tests: 2016 SATs & Beyond" PDF document.
[Read ePub](#)
»



[PDF] Tinga Tinga Tales: Why Lion Roars - Read it Yourself with Ladybird
Click the hyperlink beneath to download "Tinga Tinga Tales: Why Lion Roars - Read it Yourself with Ladybird" PDF document.
[Read ePub](#)
»