


[DOWNLOAD](#)


Investigation of Navier-Stokes Code Verification and Design Optimization

By National Aeronautics and Space Administration (NASA)

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...



READ ONLINE
[8.62 MB]

Reviews

This book is fantastic. It normally fails to price excessive. Your daily life span will likely be enhance once you total reading this publication.

-- **Heath Prosacco**

This published book is wonderful. It is one of the most incredible book we have go through. I realized this pdf from my i and dad advised this book to learn.

-- **Felicia Heidenreich**