



Towards large eddy simulation of reactive flows for internal combustion engines

By Michael Baumann

Shaker Verlag Jul 2013, 2013. Buch. Book Condition: Neu. 208x146x15 mm. Neuware - The present work is focused on the detailed investigation of internal combustion engines in terms of flow and combustion analysis using an advanced numerical simulation method in the framework of computational fluid dynamics. The numerical approach used in this work is based on the Large Eddy Simulation technique implemented in STAR-CD, which has the intrinsic capability to accurately observe highly unsteady phenomena of engine flow characteristics. An extended version of the Coherent Flame Model, called 3-Zones Extended Coherent Flame Model (ECFM-3Z), which provides a universal combustion modelling approach available for all modes of technical reacting flows, is applied within the LES context. The ECFM-3Z is a model specially developed, to describe the combustion process taking place in modern internal combustion engines, in which depending on the mixture different modes of combustion exists. This study provides a comprehensive validation of the LES combined with the ECFM-3Z combustion model and reveals a detailed insight into incylinder physical phenomena. After an introduction to the fluid dynamics background in the form of a mathematical and physical description of turbulent reactive flows and their numerical implementation, the ECFM-3Z LES approach is first...

DOWNLOAD



READ ONLINE
[5.68 MB]

Reviews

Thorough manual for ebook fans. it had been writtern quite properly and valuable. It is extremely difficult to leave it before concluding, once you begin to read the book.

-- **Dr. Catherine Wehner**

Absolutely among the best book I have possibly go through. I have go through and that i am certain that i am going to gonna read through once again again in the future. I am just delighted to tell you that this is basically the finest book i have got go through within my personal existence and could be he finest book for ever.

-- **Brian Bauch**