

Numerical simulation in fluid dynamics: a practical introduction

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Abstrak

Detailed hints for the implementation of the various algorithms enable readers to write their own flow simulation program from scratch. The variety of applications is shown in several simulation results, including 93 black-and-white and 17 color illustrations.

Moreover, after reading this book, readers should be able to understand more enhanced algorithms of computational fluid dynamics and to apply their new knowledge of modeling, discretization, parallelization, and visualization to other scientific fields, where numerical simulation has established itself, in addition to theoretical investigations and practical experiments, as a new path for uncovering the laws of nature. Among these fields are the examination of elastic solids, combustion, melting and coating processes, and crystal growth, as well as weather prediction.