



Advanced Numerical Simulation Methods: From CAD Data Directly to Simulation Results

By Gernot Beer

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This book is an entertaining, easy to read introduction to advanced numerical modeling. The aim of the book is to lead the reader on a journey towards the ‘holy grail’ of numerical simulation, namely one without the requirement of mesh generation, that takes data directly from CAD programs. On this journey readers will discover the beauty of Non-uniform Rational B-Splines or NURBS and see how well they are suited for describing geometry, discover how CAD programs work and how their data can be used for simulation. The implementation of NURBS-based simulation is discussed using Finite Element and Boundary Element technology. This is a hands-on book with emphasis on implementation and examples of programming in a higher level language are given. It has been written for users of simulation software, so they can understand the benefits of this new technology and demand progress from a somewhat conservative industry, for software developers, so they can see that this is a technology with a big future and for researchers, in the hope that it will attract more people to work in this exciting new field.

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Editorial Review

Review

The book [...] comes with a developing toolkit that allows the reader to gain some hands-on experience and to get familiar with the new concepts [...] This book is pioneer on the integration of CAD and Boundary Element Analysis.

Prof. Dr. Adrián P. Cisilino, UNMdP, Mar del Plata, Argentina

About the Author

Gernot Beer has been working in the area of numerical simulation since 1975 and has published 4 books on this topic. He has been involved in applying numerical simulation in numerous projects around the world, including the design of caverns for the CERN facility in Geneva and the investigation of a large underground power station in Iran. After working in a consulting office and for a large scientific and industrial research organisation he was appointed in 1993 as professor for structural analysis at the University of Technology Graz, Austria. Since 2012 he is emeritus professor of this institution.

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