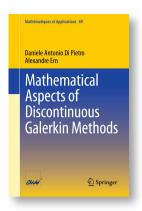


## springer.com



2012, XVII, 384 p. 34 illus.



## Softcover

- ► 89,95 € | £81.00 | \$124.00
- ► \*96,25 € (D) | 98,95 € (A) | CHF 120.00



For individual purchases buy at a lower price on <u>springer.com</u>.

A free preview is available.

Also available from libraries offering Springer's eBook

Collection.

springer.com/ebooks



Printed eBook exclusively available to patrons whose library offers Springer's eBook Collection.\*\*\*

- ▶ € | \$ 24.95
- springer.com/mycopy

**D.A. Di Pietro**, IFP Energies nouvelles, Rueil-Malmaison, France; **A. Ern**, Université Paris Est, Marne-la-Vallée, France

## **Mathematical Aspects of Discontinuous Galerkin Methods**

Series: Mathématiques et Applications, Vol. 69

- Understanding the mathematical foundations helps the reader design methods for new applications
- ▶ Bridging the gap between finite volumes, finite elements, and discontinuous Galerkin methods provides new insight on numerical methods
- ► The mathematical setting for the continuous model is a key to successful approximation methods

This book introduces the basic ideas for building discontinuous Galerkin methods and, at the same time, incorporates several recent mathematical developments. It is to a large extent self-contained and is intended for graduate students and researchers in numerical analysis. The material covers a wide range of model problems, both steady and unsteady, elaborating from advection-reaction and diffusion problems up to the Navier-Stokes equations and Friedrichs' systems. Both finite-element and finite-volume viewpoints are utilized to convey the main ideas underlying the design of the approximation. The analysis is presented in a rigorous mathematical setting where discrete counterparts of the key properties of the continuous problem are identified. The framework encompasses fairly general meshes regarding element shapes and hanging nodes. Salient implementation issues are also addressed.



Order online at springer.com ➤ or for the Americas call (toll free) 1-800-SPRINGER ➤ or email us at: orders-ny@springer.com. ➤ For outside the Americas call +49 (0) 6221-345-4301 ➤ or email us at: orders-hd-individuals@springer.com.

The first  $\in$  price and the £ and \$ price are net prices, subject to local VAT. Prices indicated with \* include VAT for books; the  $\in$ (D) includes 7% for Germany, the  $\in$ (A) includes 10% for Austria. Prices indicated with \*\* include VAT for electronic products; 19% for Germany, 20% for Austria. All prices exclusive of carriage charges. Prices and other details are subject to change without notice. All errors and omissions excepted.