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**Front tracking for hyperbolic conservation laws.** (English) [Zbl 1006.35002](#)

*Applied Mathematical Sciences*. 152. Berlin: Springer. xi, 363 p. EUR 64.95/net; sFr. 108.00; £45.50; \$ 64.95 (2002).

The authors, both belonging to the founding generation of front tracking, have now presented a text book on the method of front tracking for hyperbolic conservation laws. The book is introductory in the sense that it explains the necessary background for scalar as well as systems of conservation laws, while it is advanced at the same time in allowing an experienced reader to understand even the details of coding a front tracking method. The authors neither avoid even lengthy technical details of convergence proofs nor the necessary comparisons with classical methods. A brief introduction to finite difference methods is included as well as a short course on the functional analytical tools like measure-valued solutions which are nowadays used in the analysis of conservation laws and their numerical methods. The book is well suited to be used in advanced undergraduate or graduate courses on conservation laws.

Reviewer: [Thomas Sonar \(Braunschweig\)](#)

**MSC:**

- [35-02](#) Research exposition (monographs, survey articles) pertaining to partial differential equations
- [35L65](#) Hyperbolic conservation laws
- [65M60](#) Finite element, Rayleigh-Ritz and Galerkin methods for initial value and initial-boundary value problems involving PDEs

Cited in **2** Reviews  
Cited in **95** Documents

**Keywords:**

[weak solutions](#); [finite difference methods](#); [measure-valued solutions](#)