

**Schwab, Ch.**

*p*- and *hp*-finite element methods. Theory and applications in solid and fluid mechanics. (English) [Zbl 0910.73003](#)

[Numerical Mathematics and Scientific Computation](#). Oxford: Clarendon Press. xii, 374 p. (1998).

This book resulted from courses on finite element analysis taught by the author in 1989/96 in Zürich. As such, the text is intended as an up-to-date view of the mathematical techniques used to establish *p*- or spectral convergence results of higher order, and *hp*- and spectral element methods. The investigation of where and when such methods are recommended in preference to the more classical *h*-version of finite elements is carefully presented with emphasis on singularly perturbed problems.

The book is recommended to graduate mathematical students and engineers seeking a good reference text on the title problem.

Reviewer: [J.C.F.Telles \(Rio de Janeiro\)](#)

**MSC:**

- [74-02](#) Research exposition (monographs, survey articles) pertaining to mechanics of deformable solids
- [76-02](#) Research exposition (monographs, survey articles) pertaining to fluid mechanics
- [74S15](#) Boundary element methods applied to problems in solid mechanics
- [76M10](#) Finite element methods applied to problems in fluid mechanics
- [65-02](#) Research exposition (monographs, survey articles) pertaining to numerical analysis

Cited in **3** Reviews  
Cited in **353** Documents

**Keywords:**

[higher-order elements](#); [spectral elements](#); [spectral convergence](#); [singularly perturbed problems](#)