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Finite volume box schemes on triangular meshes. (English) Zbl 0920.65065
RAIRO, Modélisation Math. Anal. Numér. 32, No. 5, 631-649 (1998).

The authors propose a finite element box scheme for equations of the form $\operatorname{div} \phi(u) = f$ generalizing that of *H. B. Keller* [Numerical solution partial differential equations. II: Proc. 2nd Sympos. numerical solution partial diff. equations, SYNSPADE 1970, Univ. Maryland, 327-350 (1971; [Zbl 0243.65060](#))]. They prove an error estimate in the discrete energy seminorm for the Poisson problem. Some numerical results and implementation details are given demonstrating that the method is effectively second order.

Reviewer: [J.D.P.Donnelly \(Oxford\)](#)

MSC:

- [65N30](#) Finite element, Rayleigh-Ritz and Galerkin methods for boundary value problems involving PDEs
- [35J05](#) Laplace operator, Helmholtz equation (reduced wave equation), Poisson equation
- [65N15](#) Error bounds for boundary value problems involving PDEs

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Keywords:

[finite volume box schemes](#); [triangular meshes](#); [mixed finite element method](#); [finite element box scheme](#); [error estimate](#); [Poisson problem](#); [numerical results](#)

Full Text: [DOI](#) [EuDML](#)

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