

Babuška, Ivo

The finite element method with Lagrangian multipliers. (English) Zbl 0258.65108
Numer. Math. 20, 179-192 (1973).

For a scan of this review see the [web version](#).

MSC:

- 65N30** Finite element, Rayleigh-Ritz and Galerkin methods for boundary value problems involving PDEs
- 65N15** Error bounds for boundary value problems involving PDEs
- 35J20** Variational methods for second-order elliptic equations

Cited in **8** Reviews
Cited in **532** Documents

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

References:

- [1] Babuška, I.: The stability of the domain of definition with respect to basic problems of the theory of partial differential equations, especially with respect to the theory of elasticity I, II. *Czechoslovak Math. J.* 76–105, 165–203 (1961).
- [2] Babuška, I.: Numerical solution of boundary value problems by perturbed variational principle. Technical Note BN-627 (1969), Institute for Fluid Dynamics and Applied Mathematics, University of Maryland.
- [3] Babuška, I.: The finite element method for elliptic equations with discontinuous coefficients. *Computing*5, 207–213 (1970). · [Zbl 0199.50603](#) · [doi:10.1007/BF02248021](#)
- [4] Babuška, I.: Approximation by Hill functions. *Commentations Math. Univ. Carolinae*,11, 387–811 (1970). · [Zbl 0215.46404](#)
- [5] Babuška, I.: Finite element method for domains with corners. *Computing*6, 264–273 (1970). · [Zbl 0224.65031](#) · [doi:10.1007/BF02238811](#)
- [6] Babuška, I.: The finite element method for elliptic differential equations. Numerical solution of partial differential equations II. SYNSPADE 1970, edited by B. Hubbard. New York, London: Academic Press 1971 (69–107).
- [7] Babuška, I.: A remark to the finite element method. *Commentations Math. Univ. Carolinae*12, 367–376 (1971). · [Zbl 0243.65069](#)
- [8] Babuška, I.: The rate of convergence for the finite element method. *SIAM J. Num. Anal.*8, 304–315 (1971). · [Zbl 0232.65080](#) · [doi:10.1137/0708031](#)
- [9] Babuška, I.: Error bound for finite element method. *Num. Math.*16, 322–333 (1971). · [Zbl 0214.42001](#) · [doi:10.1007/BF02165003](#)
- [10] Babuška, I.: Finite element method with penalty. Technical Note BN-710 (1971), Institute for Fluid Dynamics and Applied Mathematics, University of Maryland.
- [11] Babuška, I.: Approximation by Hill functions II. Technical Note BN-708 (1971), Institute for Fluid Dynamics and Applied Mathematics, University of Maryland.
- [12] Babuška, I.: The finite element method for infinite domains I. Technical Note BN-670 (1970), Institute for Fluid Dynamics and Applied Mathematics, University of Maryland. To appear in *Math of Comp.*
- [13] Babuška, I., Rosenzweig, M. B.: A finite element scheme for domains with corners. Technical Note BN-720 (1971), Institute for Fluid Dynamics and Applied Mathematics, University of Maryland.
- [14] Bramble, J. H., Schatz, A. H.: On the numerical solution of elliptic boundary value problems by least square approximation of the data. Numerical solution of partial differential equations II. SYNSPADE 1970, edited by B. Hubbard. New York, London: Academic Press 1971 (107–133). · [Zbl 0389.65050](#)
- [15] Bramble, J. H., Zlámal, M.: Triangular elements in the finite element method. *Math. of Comp.* 809–821 (1970).
- [16] Fix, G., Strang, G.: A Fourier analysis of the finite element variational method. To appear. · [Zbl 0272.65099](#)
- [17] Gallagher, R. H.: Trends and directions in the applications of Numerical analysis. ONR Symposium on numerical and computer methods in structural mechanics, University of Ill., September 8–10, 1971.
- [18] Nitsche, J.: Über Variationsprinzip für Lösung von Dirichlet-Problemen bei Verwendung von Teilräumen, die keinen Randbedingungen unterworfen sind. To appear. · [Zbl 0229.65079](#)
- [19] Elsgolc, L. E.: *Calculus of variations*. London, Paris, Frankfurt: Pergamon Press 1961. · [Zbl 0101.32001](#)
- [20] Krein, S. G., Petunin, Yu I.: Scales of Banach spaces. *Russian Math. Surveys*21, 85–160 (1966). · [Zbl 0173.15702](#) · [doi:10.1070/RM1966v021n02ABE](#)
- [21] Lions, J. L., Magenes, E.: *Problèmes aux limites non homogènes et applications*. Vol. 1, Paris: Dunod 1968. · [Zbl 0165.10801](#)
- [22] Rashid, Y. R.: On computational methods in solid mechanics and stress analysis. Conf. on the effective use of computers in the nuclear industry, April 21–23, 1969, Knoxville.
- [23] Slobodeckii, M. I.: Generalized Sobolev spaces and their applications to boundary problems for partial differential equations.

Am. Math. Soc. Transl.21, 207–275 (1966).

- [24] Strang, G.: The finite element method and approximation theory. Numerical solution of partial differential equations II. SYNSPADE 1970, edited by B. Hubbard. New York, London: Academic Press 1971 (547–585).
- [25] Washizu, K.: Variational methods in elasticity and plasticity. Pergamon Press 1968. · [Zbl 0164.26001](#)
- [26] Zlámal, M.: On the finite element method. Numer. Math.12, 394–409 (1968). · [Zbl 0176.16001](#) · [doi:10.1007/BF02161362](#)

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