

As is to be expected in view of (4.39) the boundary integral gives after evaluation of the sums

$$(6.26) \quad \oint_{\partial\Omega} \mu^{-\beta} (a^{11}a^{22} - (a^{12})^2) (v_y dv_x - v_x dv_y) .$$

By the way (4.43) was derived in the present case we come to (6.13).

The proof of (6.14) follows the same lines. Of course the formulae become somehow lengthy but there are no additional difficulties.

#### Bibliography

- [1] CIARLET, Ph.G.: The finite element method for elliptic problems. North Holland Publishing Company, Amsterdam 1977.
- [2] CIARLET, Ph.G. and P.A. RAVIART: The combined effect of curved boundaries and numerical integration in isoparametric finite element methods. Proc. of Conf. "The Mathematical Foundations of the Finite Element Method with Applications to Partial Differential Equations", A.K. Aziz ed., Acad. Press 409-474 (1972).
- [3] MORREY, C.B.: Multiple integrals in the calculus of variations. Springer Verlag, New York (1966).
- [4] NATTERER, F.: Über die punktweise Konvergenz finiter Elemente. Num. Math. 25, 67-77 (1975).
- [5] NITSCHÉ, J.: Zur Konvergenz von Näherungsverfahren bezüglich verschiedener Normen. Num. Math. 15, 224-228 (1970).
- [6] NITSCHÉ, J.:  $L^\infty$ -Convergence of finite element approximation. Second Conf. on Finite Elements, Rennes (1975).
- [7] SCHÄTZ, A.H.: An observation concerning Ritz-Galerkin methods with indefinite bilinear forms. Math. Comp. 28, 959-962 (1974).
- [8] SCHÄTZ, A.H. and L.B. WAHLBIN: Maximum norm estimates in the finite element method on plane polygonal domains. Math. Comp. 32, 73-109 (1978).
- [9] SCOTT, R.: Optimal  $L^\infty$ -estimates for the finite element method on irregular meshes. Math. Comp. 30, 681-697 (1976).
- [10] ZLAMAL, M.: Curved elements in the finite element method, Part I: SIAM J. Numer. Anal. 10, 229-240 (1973), Part II: SIAM J. Numer. Anal. 11, 347-362 (1974).

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