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**On approximation of the Neumann problem by the penalty method.** (English) Zbl 0795.65075  
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Author's summary: We prove that penalization of constraints occurring in the linear elliptic Neumann problem yields directly the exact solution for an arbitrary set of penalty parameters. In this case there is a continuum of Lagrange's multipliers. The proposed penalty method is applied to calculate the magnetic field in the window of a transformer.

Reviewer: J.D.P.Donnely (Oxford)

**MSC:**

- 65N30 Finite element, Rayleigh-Ritz and Galerkin methods for boundary value problems involving PDEs
- 35J25 Boundary value problems for second-order elliptic equations
- 78A25 Electromagnetic theory (general)
- 35Q60 PDEs in connection with optics and electromagnetic theory

**Keywords:**

linear elliptic Neumann problem; Lagrange's multipliers; penalty method; magnetic field

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

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