

Payne, L. E.; Schaefer, P. W.

On overdetermined boundary value problems for the biharmonic operator. (English)

Zbl 0810.35020

J. Math. Anal. Appl. 187, No. 2, 598-616 (1994).

Summary: We consider several overdetermined boundary value problems for the biharmonic operator and deduce that if a solution exists, then the domain must be a ball in N -space. When the auxiliary conditions are prescribed on the boundary, we reduce the problem to an equivalent second order overdetermined problem and use Rellich and Green identities and/or maximum principle arguments. When one or more auxiliary condition is specified on an interior surface, we use a particular solution of an associated problem to obtain the result.

MSC:

35J40 Boundary value problems for higher-order elliptic equations

31B30 Biharmonic and polyharmonic equations and functions in higher dimensions

58J70 Invariance and symmetry properties for PDEs on manifolds

Cited in **1** Review
Cited in **9** Documents

Keywords:

overdetermined boundary value problems; biharmonic operator

Full Text: [DOI](#)