

**Gajewski, Herbert**

**An application of eigenfunctions of  $p$ -Laplacians to domain separation.** (English)

Zbl 0979.35041

Math. Bohem. 126, No. 2, 395-401 (2001).

Summary: We are interested in algorithms for constructing surfaces  $\Gamma$  of possibly small measure that separate a given domain  $\Omega$  into two regions of equal measure. Using the integral formula for the total gradient variation, we show that such separators can be constructed approximatively by means of sign changing eigenfunctions of the  $p$ -Laplacians,  $p \rightarrow 1$ , under homogeneous Neumann boundary conditions. These eigenfunctions turn out to be limits of steepest descent methods applied to suitable norm quotients.

**MSC:**

[35J20](#) Variational methods for second-order elliptic equations

Cited in **2** Documents

[58E12](#) Variational problems concerning minimal surfaces (problems in two independent variables)

**Keywords:**

perimeter; relative isoperimetric inequality;  $p$ -Laplacian; eigenfunctions; steepest decent method

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