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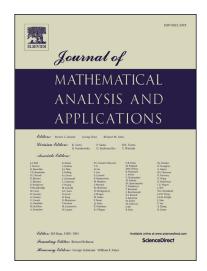
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Some existence results of bounded variation solutions to 1-biharmonic problems

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Abstract

In this paper we establish some existence results to a fourth-order quasilinear elliptic equation involving the 1-biharmonic operator, formally given by $\Delta_1^2 u = \Delta \left(\frac{\Delta u}{|\Delta u|} \right)$. We consider different geometrical assumptions in the nonlinearity and use variational methods in order to get nontrivial ground-state solutions.

Keywords. 1-biharmonic operator, bounded variation functions, variational methods. **2010 Mathematics Subject Classification**. 35J30, 35J62.

1 Introduction and main results

In this work we are interested in the following quasilinear fourth-order problem

$$\begin{cases} \Delta_1^2 u = f(x, u) & \text{in } \Omega, \\ u = \frac{\Delta u}{|\Delta u|} = 0 & \text{on } \partial\Omega, \end{cases}$$
 (1.1)

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