

**Quasi-linear elliptic equations depending on the gradient of the solution**

by

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For a quasi-linear elliptic problem involving the  $p$ -Laplacian operator and depending on the gradient of the solution we prove the existence of a positive solution and of a negative solution. The existence of the extremal constant-sign solutions, i.e., the smallest positive solution and the biggest negative solution, is also proven. Our approach is based on extremal solutions for an auxiliary parametric problem, sub-supersolution method, Schaefer's fixed point theorem, regularity results and strong maximum principle. The results are taken from the recent paper:

F. Faraci, D. Motreanu and G. Puglisi, Positive solutions of quasi-linear elliptic equations with dependence on the gradient, *Calculus of Variations and Partial Differential Equations*, in print.