

# Positive solutions for $(p,q)$ -equations with convection and a sign-changing reaction

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October 9, 2020

## Abstract

We consider a nonlinear Dirichlet problem driven by the  $(p,q)$ -Laplacian and with a reaction which is dependent on the gradient. We look for positive solutions and we do not assume that the reaction is nonnegative. Using a mixture of variational and topological methods (the “frozen variable” technique), we prove the existence of a positive smooth solution.

## Hosted file

Positive\_p\_q.pdf available at <https://authorea.com/users/365758/articles/485733-positive-solutions-for-p-q-equations-with-convection-and-a-sign-changing-reaction>