

# Multiple solutions for polyharmonic equations with potential vanishing at infinity

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## Abstract

We are concerned with the following polyharmonic equation: 
$$\Delta^L u + V(x)|u|^{p-2}u = K(x)f(x,u)$$
 and  $u > 0$  in  $\mathbb{R}^N$ , where  $1 < p < \infty$ ,  $N > Lp$ ,  $L = 1, 2, \dots$  and the potential functions  $V, K: \mathbb{R}^N \rightarrow (0, \infty)$  are continuous. We study the existence and multiplicity of nontrivial positive weak solutions for the problem above via mountain pass theorem and fountain theorem.

## Hosted file

PKLB\_polyharmonic\_final\_2020.pdf available at <https://authorea.com/users/302433/articles/432520-multiple-solutions-for-polyharmonic-equations-with-potential-vanishing-at-infinity>