

EXISTENCE AND CONCENTRATION OF SOLUTIONS FOR A CLASS OF ELLIPTIC PROBLEM WITH DISCONTINUOUS NONLINEARITY IN $\mathbb{R}^N$.

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Using variational methods we establish the existence and concentration of positive solutions for the following class of elliptic problems with discontinuous nonlinearity

$$\begin{cases} -\Delta u + V(\epsilon x)u = H(u - \beta)u^p & \text{in } \mathbb{R}^N, \\ u > 0 & \text{in } \mathbb{R}^N, \end{cases} \quad (P)_{\epsilon, \beta}$$

where $\epsilon, \beta > 0$ are positive parameters, H is the Heaviside function given by

$$H(t) = \begin{cases} 1 & \text{if } t > 0, \\ 0 & \text{if } t \leq 0, \end{cases}$$

and $p \in (1, \frac{N+2}{N-2})$ if $N \geq 3$ or $p \in (1, +\infty)$ if $N = 1, 2$. Moreover, $V : \mathbb{R}^N \rightarrow \mathbb{R}$ is a positive continuous function verifying the assumption:

$$V_\infty = \liminf_{|x| \rightarrow \infty} V(x) > \inf_{x \in \mathbb{R}^N} V(x) = \gamma > 0. \quad (V_0)$$

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