Analysis Seminar

Existence and concentration of ground state solutions for an equation with steep potential well and exponential critical growth

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Abstract. In this paper we study the existence and concentration of ground state solution for the following class of elliptic equations

$$
\begin{cases}
-\operatorname{div}(a(|\nabla u|^p)|\nabla u|^{p-2}\nabla u) + (1+\mu V(x))b(|u|^p)|u|^{p-2}u = f(u) & \text{in } \mathbb{R}^N, \\[2mm]
u \in W^{1,p}(\mathbb{R}^N) \cap W^{1,N}(\mathbb{R}^N),
\end{cases}
$$

where $1 < p \le N$, $N \ge 2$, $\mu > 0$ is a parameter, the functions $a,\ b \in C^1(\mathbb{R})$ and the nonlinearity f has an exponential critical growth. To show the existence and concentration results we obtain interesting estimates which does not depend on the parameter μ.

References

[1] G. S. A. Costa, *Existence and concentration of ground state solutions for an equation with steep potential well and exponential critical growth.* Journal of Mathematical Analysis and Applications, p. 126708, 2022.