

Multiple positive solutions for some Schrödinger Equations

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Abstract: We consider the problem

$$(P) \quad \begin{cases} -\Delta u + a(x)u = |u|^{p-1}u & \text{in } \mathbb{R}^N \\ u \in H^1(\mathbb{R}^N) \end{cases}$$

where $N \geq 2$, $p \in (1, \frac{N+2}{N-2})$ and the potential $a(x)$ is a continuous positive function such that

- i) $a(x) \rightarrow a_\infty > 0$ as $|x| \rightarrow \infty$,
- ii) $a(x) \geq a_\infty$, $a(x) \neq a_\infty$

Under suitable assumptions on the decay and on the oscillation of $a(x)$, but without any symmetry assumption, we prove the existence of infinitely many positive solutions of (P).