Existence of solutions for a class of elliptic problems with zero mass

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In this conference, we will show some recent results involving the existence of solution for the following class of elliptic problems

$$\begin{cases} -\Delta u + V(x)u = f(u), & \mathbb{R}^N \\ \\ u \in D^{1,2}(\mathbb{R}^N) \end{cases}$$

where $f : \mathbb{R} \to \mathbb{R}$ is a continuous functions verifying some technical conditions and $V : \mathbb{R}^N \to \mathbb{R}$ is a nonnegative continuous potential satisfying

$$V(x) \to 0 \quad \text{as} \quad |x| \to +\infty.$$

This class of problem is called *problem with zero mass* .

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