Research

Analysis Seminar

Existence and concentration of nodal solutions for a subcritical $p\&q$ equation

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Abstract. We prove existence and concentration results for a family of nodal solutions for a some quasilinear equation with subcritical growth, whose prototype is

$$-\Delta_p u - \Delta_q u + V(x)(|u|^{p-2}u + |u|^{q-2}u) = f(u) \quad \text{in } \mathbb{R}^N.$$

Each nodal solution changes sign exactly once in $\mathbb{R}^N$ and has an exponential decay at infinity. Here we use variational methods and Del Pino and Felmer's technique [1] in order to overcome the lack of compactness.

References

[1] M. Del Pino, P. Felmer, *Local mountain pass for semilinear elliptic problems in unbounded domains*, Calc. Var. Partial Differential Equations **4** (1996), 121 - 137.

[2] Gustavo S. Costa, Giovany M. Figueiredo, *Existence and concentration of nodal solutions for a subcritical p&q equation*. Communications on Pure & Applied Analysis, 2020, 19 (11) : 5077-5095.