Radial solutions of scaling invariant nonlinear elliptic equations with mixed reaction terms

Abstract

We study global properties of positive radial solutions of $-\Delta u = u^p + M|\nabla u|^{\frac{2p}{p+1}}$ in $\mathbb{R}^N$ where $p > 1$ and M is a real number. We prove the existence or the non-existence of ground states and of solutions with singularity at 0 according to the values of M and p.