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Existence of solutions and removable singularities
for a quasilinear equation with absorption or diffusion.

ABSTRACT

Here we study the solutions of equations

$$-\Delta_p u = \pm |u|^{q-1} u + \mu$$

in a domain Ω of $\mathbb{R}^N$, where $1 < p < N$, $q > p-1$, and μ is a Radon measure on Ω. We give necessary conditions on μ for the existence of solutions in terms of capacity. We study the question of removability sets, and prove some stability results. Finally we give existence results in $\mathbb{R}^N$ for the absorption case. The proofs are based on the introduction of a notion of local entropy solution.