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Karthik Adimurthi and **Phuc C Nguyen*** (pcnguyen@math.lsu.edu). *Quasilinear equations with gradient power source terms of natural growth and distributional data.*

We obtain necessary and sufficient conditions, with sharp constants, on the distributional data σ for the existence of a globally finite energy solution to the quasilinear equation with a gradient power source term of natural growth of the form $-\Delta_p u = |\nabla u|^p + \sigma$ in a bounded open set $\Omega \subset \mathbb{R}^n$. Here Δ_p , $p > 1$, is the standard p -Laplacian operator defined by $\Delta_p u := \operatorname{div}(|\nabla u|^{p-2} \nabla u)$. The study of $-\Delta_p u = |\nabla u|^p + \sigma$ is then applied to show the existence of globally finite energy solutions to the quasilinear equation of Schrödinger type $-\Delta_p v = \sigma v^{p-1}$, $v \geq 0$ in Ω , and $v = 1$ on $\partial\Omega$, via the exponential transformation $u \mapsto v = e^{\frac{u}{p-1}}$. This talk is based on joint work with Karthik Adimurthi. (Received September 11, 2017)