

# Some classes of solutions to quasilinear elliptic equations of $p$ -Laplace type

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**Abstract:** This talk is concerned with various classes of solutions, including  $L^r$ ,  $BMO$ , and  $W^{1,r}$  solutions, along with their local counterparts, to quasilinear elliptic equations of the type  $-\Delta_p u = \sigma u^q + \mu$  in  $\mathbf{R}^n$  in the sub-natural growth case  $0 < q < p - 1$ . Here  $\mu$  and  $\sigma$  are nonnegative functions (or measures), and  $\Delta_p$  is the  $p$ -Laplacian. We will discuss necessary and sufficient conditions for the existence of solutions, in both capacity and nonlinear potential theory terms, as well as related weighted norm inequalities.