

Contribution Title: ON POSITIVE SOLUTIONS AND LIOUVILLE THEOREMS FOR P-LAPLACIAN-TYPE EQUATIONS  
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Let  $\Omega$  be a domain in  $\mathbb{R}^d$ ,  $d \geq 2$ ,  $1 < p < \infty$ , and  $V \in L_{\text{loc}}^\infty(\Omega)$ . In this talk we shall discuss a few aspects of relations between functional-analytic properties of the functional

$$Q(u) := \frac{1}{p} \int_{\Omega} (|\nabla u|^p + V|u|^p) dx \quad u \in C_0^\infty(\Omega),$$

and properties of positive solutions of the equation

$$-\Delta_p(u) + V|u|^{p-2}u = 0 \quad \text{in } \Omega,$$

where  $\Delta_p(u) := \nabla \cdot (|\nabla u|^{p-2} \nabla u)$  is the celebrated  $p$ -Laplacian. As an application we shall present Liouville theorems for such equations.