Interior and Boundary Estimates for Second-Order Elliptic Equations with Unbounded Coefficients

Abstract: We discuss so-called *growth lemmas* for second-order, non-divergence elliptic equations $Lu = \sum a_{ij} D_{ij} u + \sum b_i D_i u = 0$ in a domain $\Omega \subset \mathbb{R}^n$, where $b_i \in L^q(\Omega),\ q \geq n$. In this setting, the classical barrier technique does not work. We outline various applications of these lemmas, such as the Harnack inequalities, the boundary Hopf–Oleinik type estimates, the estimates for gaps between the eigenvalues, etc.