COMPARISON OF HARMONIC KERNELS ASSOCIATED WITH A CLASS OF SEMILINEAR ELLIPTIC EQUATIONS

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Abstract: Let D be a smooth domain in $\mathbb{R}^N$, $N \geq 3$, and let f be a positive continuous function on ∂D. Under some assumptions on φ, it is shown that the problem $\Delta u = 2\varphi(u)$ in D and $u = f$ on ∂D admits a unique solution which will be denoted by $H_D^\varphi f$. Given two functions φ and ψ, our main goal in this paper is to investigate the existence of a constant $c > 0$ such that

$$\frac{1}{c} H_D^\varphi f \leq H_D^\psi f \leq c H_D^\varphi f.$$

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