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Lorentz estimates for harmonic functions on annular regions. (Chinese. English summary)

Summary: In this paper, we consider a harmonic function $u$ on annular region $B_1 \setminus B_\epsilon$ in $\mathbb{R}^n$, $\epsilon \ll 1$. We conclude that the $L^{p,1}$-norm of $\nabla u$ on a smaller domain can be controlled by the $L^{p,\infty}$-norm of $\nabla u$ on $B_1 \setminus B_\epsilon$ up to some appropriate boundary conditions when $1 < p < \infty$ and the constant is independent of $\epsilon$.

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31B05 Harmonic, subharmonic, superharmonic functions in higher dimensions

Keywords:
Lorentz space; Wente-type inequality; harmonic function

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