On general Caffarelli-Kohn-Nirenberg type inequalities involving non-doubling weights in the case of $p = 1$

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Received January 15, 2026; revised October 16, 2026

Abstract

We study the Caffarelli-Kohn-Nirenberg type inequalities in the case of $p = 1$ and generalize them adopting weight functions $w(|x|)$ on $\mathbf{R}^n$ with $w(t) \in W(\mathbf{R}_+)$. Here $W(\mathbf{R}_+)$ is a general class of weight functions on $\mathbf{R}_+$ including non-doubling weights like $e^{\pm 1/t}$. *