

Two-sided weighted Fourier inequalities

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Abstract. Fourier transform estimates for $\|\widehat{f}\|_{L_{q,\tilde{w}}}$ via $\|f\|_{L_{p,w}}$ from above and from below are studied. For $p = q$, equivalence results, *i.e.*,

$$C_1\|f\|_{L_{p,w}} \leq \|\widehat{f}\|_{L_{p,\tilde{w}}} \leq C_2\|f\|_{L_{p,w}}, \quad \tilde{w}(x) = w(1/x)x^{p-2}, \quad 1 \leq p < \infty,$$

are shown to be valid for functions from certain classes under the Muckenhoupt conditions: $w \in A_p$ or $w \in A_{2p}$. Sharpness of these conditions is proved.

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