A NEW CARLSON TYPE INEQUALITY

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Abstract. Consider a measure space \((X, d\xi)\) on which weight functions \(v, v_0\) and \(v_1\) are defined, and let \(\theta \in (0, 1)\) and \(p, p_0, p_1 \in \mathbb{R}_+\). We investigate the three-weight Carlson type inequality

\[ \|fv\|_{L^p(X, d\xi)} \leq A\|f\|_{L^{p0}(X, d\xi)}^{\theta}\|f\|_{L^{p1}(X, d\xi)}^{1-\theta} \]

\[ \text{for some constant } A < \infty \text{ and all measurable functions } f. \]

A fairly general inequality of this type is proved. This result may be regarded as a generalization and unification of some other recent results of this type in the literature.

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REFERENCES