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ON THE BOUNDEDNESS AND COMPACTNESS OF A CERTAIN INTEGRAL OPERATOR

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ABSTRACT. Let $\alpha > 0$ and $\beta > 1$. In the present work, the necessary and sufficient conditions for the boundedness and compactness of the integral operator of the form

$$L_{\alpha,\beta}f(x) := v(x) \int_0^x \frac{\ln^{\beta-1}(\frac{x}{y})f(y)u(y)dy}{(x-y)^{1-\alpha}}, \quad x > 0,$$

from $L^p \rightarrow L^q$, with locally integrable non-negative weight functions u and v , in the case $0 < p, q < \infty, p > \max(1/\alpha, 1)$, provided u is non-increasing on $\mathbb{R}^+ := [0, \infty)$ are found.

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