ON THE REVERSE CONVOLUTION INEQUALITIES
FOR THE KONTOROVICH–LEBEDEV, FOURIER
COSINE TRANSFORMS AND APPLICATIONS

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Abstract. In this paper, we investigate some reverse weighted L_p-norm ($p > 1$) inequalities for convolutions related to Kontorovich-Lebedev, Fourier cosine transforms. A class of intergro-diffirential equations involing in Bessel operator are considered. The estimate of scratted acoustic field is established.

REFERENCES

[1] M. ABRAMOWITZ AND I. A. STEGUN, *Handbook of Mathematical Functions with Formulas, Graphs, and Mathematical Tables*, National Bureau of Standards, Applied Mathematics Series **55**, Washington, 1979.

[2] D. S JONES, *The Theory of Electromagnetism*, Pergamon Press, London, 1964.

[3] N. T. HONG, *Inequalities for Fourier cosine convolution and applications*, Integral Transforms Spec. Funct. **62**, 10 (2010), 755–763.

[4] N. T. HONG, P. V. HOANG, AND V. K. TUAN, *The convolution for the Kontorovich-Lebedev transform revisited*, J. Math. Anal. Appl. **440**, 1 (2016), 369–378.

[5] V. A. KAKICHEV, *On the convolution for integral transforms*, Izv. Vyssh. Uchebn. Zaved. Mat. **2**, 1 (1967), 53–62 (In Russian).

[6] N. D. V. NHAN, D. T. DUC, AND V. K. TUAN, *Reverse weighted l_p-norm inequalities for convolution type integrals*, Armenian. Journ. of. Amth **2**, 3 (2009), 77–93.

[7] S. SAITOH, *A fudamental inequality in convolution of L_2 functions on the half line*, Proc. Amer. Math. **91**, 2 (1984), 285–286.

[8] S. SAITOH, *Inequalities in the most simple Sobolev space and convolution of L_2 functions with weights*, Proc. Amer. Math. **118**, 2 (1993), 515–520.

[9] S. SAITOH, V. K. TUAN, AND M. YAMAMOTO, *Reverse weighted L_p-norm inequalities in convolutions*, J. of Ineq. In Pure and App. Math. **1**, 1 (2000), 1–11.

[10] S. SAITOH, V. K. TUAN, AND M. YAMAMOTO, *Reverse convolution inequalities and applications to inverse heat source problems*, J. of Ineq. In Pure and App. Math. **3**, 5 (2002), 1–11.

[11] S. SAITOH, V. K. TUAN, AND M. YAMAMOTO, *Convolution inequalities and Applications*, J. of Ineq. In Pure and App. Math. **4**, 3 (2003), 1–8.

[12] T. TUAN, N. T. HONG, AND P. V. HOANG, *Generalized convolution for the Kontorovich-Lebedev, Fourier transforms and applications to acoustic fields*, Acta Math. Vietnam. **42**, 2 (2016), 355–367.

[13] L. XIAO-HUA, *On the inverse of Hölder inequality*, Math. Practice and Theory **1**, 1 (1990), 84–88.

[14] S. B. YAKUBOVICH, *Index Transforms*, World Scisentific Publishing Company, Singapore, New Jersey, London and Hong Kong, 1996.

[15] S. B. YAKUBOVICH, *Boundedness and inversion properties of certain convolution transforms*, J. Korean Math. Soc. **40**, 6 (2003), 999–1014.

[16] S. B. YAKUBOVICH, *Integral transforms of the Kontorovich-Lebedev convolution type*, Collect. Math. **54**, 2 (2003), 99–110.

[17] S. B. YAKUBOVICH, L. E. BRITVINA, *Convolution related to the Fourier and Kontorovich-Lebedev transforms revisited*, Integral Transforms Spec. Funct. **21**, 4 (2010), 259–276.

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