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HIGHER–DIMENSIONAL WEIGHTED KNOPP TYPE INEQUALITIES

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Abstract. We give a necessary and sufficient condition on weight pairs for a class of higher-dimensional weighted Knopp type inequalities to hold. The corresponding result for the multivariate adjoint Hardy type operator is obtained.

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REFERENCES

[1] M. CHRIST AND L. GRAFAKOS, *Best constants for two nonconvolution inequalities*, Proc. Amer. Math. Soc, **123**, (1995), 1687–1693.
[2] P. DRÁBEK, H. P. HEINIG AND A. KUFNER, *Higher-dimensional Hardy inequality*, General inequalities, 7 (Oberwolfach, 1995), 3–16, Internat. Ser. Numer. Math., **123**, Birkhäuser, Basel, 1997.
[3] G. H. HARDY, J. E. LITTLEWOOD, AND G. PÓLYA, *Inequalities*, 2nd ed., Cambridge University Press, Cambridge, UK, 1952.
[4] Z. FU, L. GRAFAKOS, S. LU AND F. ZHAO, *Sharp bounds for m-linear Hardy and Hilbert operators*, Houston J. Math. **38**, (2012), 225–244.
[5] H. P. HEINIG, R. KERMAN AND M. KRBEC, *Weighted exponential inequality*, Georgian Math. J. **8**, (2001), 69–86.
[6] B. G. PACHPATTE, *On multivariable Hardy type inequalities*, An. Stiint. Univ. Al. I. Cuza Iasi. Mat. (N.S.), **38**, (1992), 355–361.
[7] S. LU, D. YAN AND F. ZHAO, *Sharp bounds for Hardy type operators on higher-dimensional product spaces*, J. Inequal. Appl. **2013**, (2013): 148, 11 pp.

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