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INTERSECTION PROPERTIES FOR CONES OF MONOTONE AND CONVEX FUNCTIONS IN SCALE OF LIPSCHITZ SPACES

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Abstract. The basic results of the real interpolation method is known to be valid for couples $(X_0 \cap Q, X_1 \cap Q)$ under the condition that the cone Q has the so-called *intersection property* with respect to the couple (X_0, X_1). In this paper we study this property for the cones of monotone and convex functions with respect to the couple of Lipschitz (Nikol'skii-Besov) spaces.

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REFERENCES

[1] I. ASEKRITOVA, *On the K – functional of the couple* $(K_{\Phi_0}(\bar{X}), K_{\Phi_1}(\bar{X}))$, Studies in the Theory of Functions of Several Real Variables, Yaroslavl, 1980, 3–31 (in Russian).
[2] J. BERGH AND J. LÖFSTRÖM, *Interpolation spaces*, Springer, Berlin (1976).
[3] YU. BRUDNYI, *On a theorem of local best approximation*, Kazan Gos. Univ. Uchen. Zap. **124** (1964), 43–49, MR32 2808.
[4] YU. BRUDNYI, N. KRUGLJAK, *Interpolation Functors and Interpolation Spaces*, Volume 1, 1991, North Holland.
[5] J. CERDÀ AND J. MARTÍN, *Interpolation of operators on decreasing functions*, Math. Scand., **78** (1996), 233–245.
[6] J. CERDÀ AND J. MARTÍN, *Interpolation of some cones of function spaces*, Preprint.
[7] C. S. HERZ, *Lipschitz spaces and Bernstein's theorem on absolutely convergent Fourier transforms*, in: Journal of Mathematics and Mechanics, Vol. 18, No. 4 (1968).
[8] T. HOLMSTEDT, *Interpolation of quasi-normed spaces*, Math. Scand. **26** (1970), 177–199.
[9] I. KOZLOV, *Interpolation and Approximation in Banach Spaces with a Cone*, Ph.D. Thesis, 1997.
[10] S. NIKOL'SKII, *Approximation of functions of several variables and imbedding theorems*, Springer-Verlag (1975).
[11] J. PEETRE, *Espaces d'interpolation et théoreme de Sobolev*, Ann. Inst. Fourier, 1966, 16, N1, 279–317.
[12] Y. SAGHER, *Some remarks in interpolation of operators and Fourier coefficients*, Studia Math.**44**, 239–252 (1972).
[13] Y. SAGHER, *An application of interpolation theory to Fourier series*, Studia Math. **41**, 169–181 (1972).
[14] A. F. TIMAN, *Approximation Theory of Real Variable Functions.* Gos. Izd. Fiz.-Mat. Lit., Moscow, 1960.

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