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ON ONE STRUCTURAL PROPERTY OF A DOUBLE SINGULAR INTEGRAL WITH A HILBERT KERNEL

Abstract

In this paper the scale of invariant Banach spaces is constructed for a double singular integral with a Hilbert kernel

$$\tilde{f}(x,y) = \frac{1}{4\pi^2} \int\limits_{-\pi}^{\pi} \int\limits_{-\pi}^{\pi} f(s,t)\, ctg\frac{x-s}{2} ctg\frac{y-t}{2}\, dsdt$$

in the language of partial and mixed smoothness of arbitrary fractional order.