EQUIVALENT CONDITIONS OF OPTIMAL HALF DISCRETE HILBERT TYPE MULTIPLE INTEGRAL INEQUALITIES WITH QUASI HOMOGENEOUS KERNEL AND APPLICATIONS

YONG HONG, BING HE AND MINGJUN FENG*

Abstract. Let $G(u, v)$ be a $\lambda$-order homogeneous function. In this paper, by discussing optimal matching parameters of the half discrete Hilbert type multiple integral inequality with quasi-homogeneous kernel $K(n, ||x||_{\rho, m}) = G(n^{\lambda_1}, ||x||_{\rho, m}^{\lambda_2})$, several equivalent conditions of the optimal matching parameters are obtained, and a basic theoretical problem of the half discrete Hilbert type inequality is solved. Finally, their applications to operator boundedness and operator norm are discussed.


Keywords and phrases: Quasi-homogeneous kernel, half discrete Hilbert type multiple integral inequality, the best constant factor, optimal matching parameter, equivalent condition, operator norm.

REFERENCES


