# Approximation of Diagonal Operators in the Average and Probabilistic Settings


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Exact values of the average linear $n$-widths with respect to the standard Gaussian measure on $\mathbb{R}^m$ are determined for diagonal matrices, and are applied to deduce several new results on linear $n$-widths in the average and probabilistic settings, including the sharp upper and lower estimates of the linear $(n, \delta)$-widths of diagonal matrices. We also obtain exact orders of the average Kolmogorov $n$-widths and the probabilistic Kolmogorov $(n, \delta)$-widths with respect to the standard Gaussian measure on $\mathbb{R}^m$ for the identity matrix.


This is joint work with Feng Dai.