

ON LEAST SQUARES APPROXIMATION BASED ON RANDOM OR OPTIMAL DATA

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We study the L_p -approximation, $2 \leq p \leq \infty$ of functions with the help of (unregularized) least squares methods based on “random” information, like function evaluations, and we want to compare this with the power of arbitrary algorithms based on arbitrary linear information, i.e., the best we can do theoretically. Here, we survey on results of the past 5 years that eventually lead to a sharp comparison which showed that function evaluations are often enough for optimal results (in a worst-case sense).

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