

Optimal spline spaces of higher degree for L^2 n-widths

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ABSTRACT

Building on previous work by Melkman and Micchelli, we will discuss how one can derive optimal subspaces for Kolmogorov n-widths in the L^2 norm with respect to sets of functions defined by kernels. This enables us to prove the existence of optimal spline subspaces of arbitrarily high degree for certain classes of functions in Sobolev spaces of importance in finite element methods. We construct these spline spaces explicitly in special cases. These results partially answers a conjecture of Evans, Bazilevs, Babuska and Hughes.

REFERENCES

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