## Optimal spline spaces for $L^2$ *n*-width problems with boundary conditions

Espen Sande Department of Mathematics, University of Oslo, Norway. espsand@math.uio.no

Recently there has been renewed interest in using splines of maximal smoothness, i.e. smoothness  $C^{d-1}$  for splines of degree d, in finite element methods for solving PDEs. This is one of the main ideas behind isogeometric analysis. This raises the issue of how good these splines are at approximating functions of a certain smoothness class, especially with respect to the  $L^2$  norm. Building on previous work of [4] and [5] we will in this talk study various function classes in  $H^r(0, 1)$  and show that they admit optimal spline spaces of all degrees  $d \ge r-1$  [2, 3]. These results partially answer a conjecture of [1].

Joint work with: Michael S. Floater.

## References

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