

OPTIMAL APPROXIMATION OF SOBOLEV FUNCTIONS IN THE L_2 AND IN THE SUPREMUM
NORM

Winfried Sickel

Friedrich-Schiller-University Jena , Germany

winfried.sickel@uni-jena.de

Using tools taken from the theory of operator ideals and s -numbers, we develop a general approach to transfer estimates for L_2 -approximation of Sobolev functions into results for L_∞ -approximation under a detailed control of all involved constants. As illustration, we derive some results for isotropic Sobolev spaces $H^s(\mathbb{T}^d)$ and Sobolev spaces of dominating mixed smoothness $H_{\text{mix}}^s(\mathbb{T}^d)$, always equipped with natural norms. Also some comments to related questions for Besov spaces will be given.

Joint work with Fernando Cobos (Universidad Complutense de Madrid, Spain) and Thomas Kuehn (University of Leipzig, Germany).