

Besov Regularity for Interface Problems

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Abstract

This paper is concerned with the Besov regularity of the solutions to interface problems in a segment S of the unit disk in \mathbb{R}^2 . We investigate the smoothness of the solutions as measured in the specific scale $B_\tau^s(L_\tau(S))$, $1/\tau = s/2 + 1/p$, of Besov spaces which determines the order of approximation that can be achieved by adaptive and nonlinear numerical schemes. The proofs are based on representations of the solution spaces which were derived by Kellogg and on characterizations of Besov spaces by wavelet expansions.

Key Words: Interface problems, adaptive methods, nonlinear approximation, Besov spaces, wavelets.

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