

New refinable spaces and local approximation estimates for hierarchical splines

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Abstract

We study the local approximation properties in hierarchical spline spaces through multiscale quasi-interpolation operators. This construction suggests the analysis of a subspace of the classical hierarchical spline space [VGJS11] which still satisfies the essential properties of the full space. The B-spline basis of such a subspace can be constructed using parent-children relations only, making it well adapted to local refinement algorithms.

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