

Variable exponent Besov spaces

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Abstract

We introduce Besov spaces with variable smoothness and integrability indices. We prove independence of the choice of basis functions, as well as several other basic properties. We also prove Sobolev-type embeddings, and show that our scale contains variable order Hölder–Zygmund spaces as particular cases. Finally, an alternative description of these variable Besov spaces is provided, using approximations by analytic functions.

This is based on joint work with Peter Hästö (University of Oulu, Finland).