

SPECIAL OPERATORS IN SOBOLEV SPACES

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We consider Sobolev spaces in several variables $L_1^p(\mathbb{R}^n)$ for $1 \leq p \leq \infty$ determined by the distributional gradient, and related spaces of smooth functions $C_0^{(1)}(\mathbb{R}^n)$ and the space of functions of bounded variation $BV(\mathbb{R}^n)$. We emphasize the role of special operators acting in these spaces like canonical embedding into the products of Banach spaces $L^p(\mathbb{R}^n)$, The Riesz - Sobolev projection, the Sobolev embedding, and the Gagliardo Nirenberg trace. We compare these Sobolev spaces with classical Banach spaces and discuss some recent results concerning the existence of lattice structure in Sobolev spaces and the approximation problem.

REFERENCE

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