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# Singular Integrals and Commutators in Generalized Morrey Spaces

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摘要

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**Abstract** We consider a singular an integral operator  $\{\mathscr K\}$  with a variable Calder'on--Zygmund type kernel  $\{k(x;\xi), \xi \in \mathbb{R}^n, x \in \mathbb{R}^n \setminus \{0\}\}$ , satisfying a mixed homogeneity condition of the form  $\{k(x;\mu^{\alpha_1} \xi_1, \dots, \mu^{\alpha_n} \xi_n) = \mu^{-\sum_{i=1}^n \alpha_i} k(x;\xi), \alpha_i \geq 1 \text{ and } \mu > 0\}$ . The continuity of this operator in  $L^p(\mathbb{R}^n)$  is well studied by Fabes and Rivi`ere. Our goal is to extend their result to generalized Morrey spaces  $L^{p,\omega}(\mathbb{R}^n)$ ,  $p \in (1, \infty)$  with a weight  $\omega$  satisfying suitable dabbling and integral conditions. A special attention is paid to the commutator  $\{C[a,k]=\mathscr K\} a - a\{\mathscr K\}$  with the operator of multiplication by BMO functions.

**Key words** [generalized Morrey spaces](#) [singular integrals](#) [commutators](#) [Calder'on--Zygmund kernel](#) [BMO](#) [VMO](#)

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