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Vanishing Mean Oscillation Spaces Associated with Operators Satisfying Davies-Gaffney Estimates

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Let $(\mathcal{X}, d, \mu)$ be a metric measure space, L a linear operator which has a bounded H_∞ functional calculus and satisfies the Davies-Gaffney estimate, Φ a concave function on $(0,\infty)$ of critical lower type $p_\Phi^-\in(0,1]$ and $\rho(t)\equiv t^{-1}/\Phi^{-1}(t^{-1})$ for all $t\in (0,\infty)$. In this paper, the authors introduce the generalized VMO space ${\mathrm {VMO}}_{\rho,L}({\mathcal X})$ associated with L, and establish its characterization via the tent space. As applications, the authors show that $({\mathrm {VMO}}_{\rho,L}({\mathcal X}))^*=B_{\Phi,L^*}({\mathcal X})$, where L^* denotes the adjoint operator of L in $L^2({\mathcal X})$ and $B_{\Phi,L^*}({\mathcal X})$ the Banach completion of the Orlicz-Hardy space $H_{\Phi,L^*}({\mathcal X})$.

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