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Tamara Kucherenko* (tamara@math.ucla.edu), UCLA, Department of Mathematics, Box 951555, Los Angeles, CA 90095-1555, and **Lutz Weis** (weis@math.uni-karlsruhe.edu), Mathematisches Institut I, Universitaet Karlsruhe, 76128 Karlsruhe, Germany. *Real interpolation of domains of sectorial operators on L_p -spaces.*

Let A be a sectorial operator on a non-atomic L_p -space, $1 \leq p < \infty$, whose resolvent consists of integral operators, or more generally, has a diffuse representation. Then the fractional domain spaces $\mathcal{D}(A^\alpha)$ for $\alpha \in (0, 1)$ do not coincide with the real interpolation spaces of $(L_q, D(A))$. As a consequence, we obtain that no such operator A has a bounded H^∞ -calculus if $p = 1$. (Received February 06, 2006)