1103-42-49 **James Michael Wilson*** (jmwilson@uvm.edu), Dept of Mathematics, University of Vermont, Burlington, VT 05461. *Almost-orthogonality without discreteness or smoothness.*

Let $N \geq 2$ be fixed. Suppose that, for every dyadic cube Q in $\mathbf{R}^d$, we have: N convex regions $\{R_i(Q)\}_1^N$, subsets of Q; and N complex numbers $\{c_i(Q)\}_1^N$ such that $|c_i(Q)| \leq 1$ and $\sum_1^N c_i(Q)|R_i(Q)| = 0$. Define $\tilde{h}_{(Q)}(x) \equiv |Q|^{-1/2}(\sum_1^N c_i(Q)\chi_{R_i(Q)}(x))$. We prove that there is an absolute constant C, independent of N or d, so that, for all such collections $\{\tilde{h}_{(Q)}\}_Q$ and all finite linear combinations $\sum \lambda_Q \tilde{h}_{(Q)}(x)$,

$$\int \left|\sum \lambda_Q \tilde{h}_{(Q)}\right|^2 dx \leq C(Nd)^2 \sum |\lambda_Q|^2.$$

Our result is a special case of a technical theorem, which we prove. (Received August 19, 2014)