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**James Michael Wilson\*** (jmwilson@uvm.edu), Department of Mathematics, 16 Colchester Avenue, University of Vermont, Burlington, VT 05405. *Invariance of almost-orthogonal systems between  $A_\infty$  weighted spaces.*

We present recent results on the invariance of almost-orthogonal systems across  $A_\infty$ -weighted spaces  $L^2(w)$ . For systems of functions adapted to the dyadic cubes, and satisfying mild smoothness and decay conditions, the functions do not change (except for trivial normalizing factors) when moving between ordinary  $L^2$  and  $L^2(w)$  ( $w \in A_\infty$ ). We will describe the extent to which having  $w \in A_\infty$  is necessary for this “invariance”. Time permitting, we will sketch some related results on wavelet representations of Calderón-Zygmund singular integral operators, showing that, in a natural sense, such operators are stable when their representing kernels suffer small errors in translation and dilation. (Received January 30, 2014)