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Kathy D. Merrill*, 44281 Road L, Mancos, CO 81328. *Smooth, well-localized frame wavelets based on new simple wavelet sets in R^2* . Preliminary report.

Wavelet set wavelets for dilation by 2 in $L^2(R^2)$ have been of limited use for two reasons. Wavelet set wavelets necessarily vanish slowly at infinity, and the wavelet sets themselves that have appeared in the literature have been complicated unions of infinite collections of convex sets. In this talk, we present new wavelet sets that are finite unions of convex sets. We then use generalized filters to construct smooth and well-localized frame wavelets with the same multiplicity function as these new wavelet sets. (Received September 17, 2006)