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**John J Benedetto\*** (jjb@math.umd.edu), Norbert Wiener Center, Department of Mathematics, University of Maryland, College Park, MD 20742, and **Emily J King**, Department of Mathematics, University of Maryland, College Park, MD 20742. *Simple smooth wavelet frames approximating Parseval frames*. Preliminary report.

The neighborhood mapping construction is an infinite, iterative process which results in orthonormal wavelet sets in  $\widehat{\mathbb{R}^d}$  which are fractal in nature. Sumetkijikan and one of the authors showed that when run for a finite number of steps, the construction yields Parseval frame wavelet sets which are the finite union of convex sets. We smooth these frame wavelets on the Fourier domain to obtain a collection of simple smooth wavelet frames with good decay which have upper and lower frame bounds arbitrarily close to 1. We also improve on the Daubechies-Kugarajah-Zhang lower frame bound estimates for these collections. (Received September 13, 2007)