1023-42-468 **Yang Wang*** (`wang@math.gatech.edu`), School of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332, and **Eugene Ionascu**. *Wavelet Sets with Nonexpanding Dilation Matrices.*

A wavelet set is a mesurable set Ω in $\mathbb{R}^n$ such that the Fourier transform of χ_Ω is a wavelet with respect to integer translations and certain dilation matrix A. Virtually all wavelets and wavelet sets have been constructed using expanding matrices as dilations. However, it was shown that wavelet sets with nonexpanding dilation matrices exist by D. Speegle. Here we completely classfy the matrices that can lead to wavelet sets in $\mathbb{R}^2$. (Received September 13, 2006)