1035-42-1550   **David R. Larson*** (`larson@math.tamu.edu`), Department of Mathematics, Texas A&M University, College Station, TX 77843, and **Peter Massopust**. *Coxeter Groups and Wavelet Sets.*

A traditional wavelet is a special case of a vector in a separable Hilbert space that generates a basis under the action of a system of unitary operators defined in terms of translation and dilation operations. A Coxeter/fractal surface wavelet is obtained by defining fractal surface functions on foldable figures which tesselate the embedding space by reflections in their bounding hyperplanes instead of by translations along a lattice. Although both theories look different at their onset, there exist connections and communalities. There is a natural notion of a dilation-reflection wavelet set. We show that dilation-reflection wavelet sets exist for arbitrary expansive matix dilations, paralleling the traditional dilation-translation wavelet theory. There are certain measurable sets which can serve simultanously as dilation-translation wavelet sets and dilation-reflection wavelet sets. (Received September 20, 2007)