

1047-42-319

David L. Donoho (donoho@stanford.edu), Department of Statistics, Stanford University, Stanford, CA 94305-4065, and **Gitta Kutyniok*** (kutyniok@uni-osnabrueck.de), Institute of Mathematics, University Osnabrueck, 49069 Osnabrueck, Germany. *Sparsity Equivalence of Anisotropic Decompositions.*

Recently, various types of anisotropic representation systems for 2-dimensional signals were developed which resolve edge- or curve-like features in a sparser way than wavelet systems as isotropic systems are capable of. All these variants such as, e.g., curvelets, 2. generation curvelets, and shearlets offer different advantages and disadvantages. Interestingly, several sparsity-related properties, e.g., optimally sparse decompositions of cartoon-like images, are shared by them precisely.

In this talk, we will show that in fact the aforementioned three systems are ‘sparsity equivalent’ in the sense of a particular uniform ℓ_p summability of associated coefficient sequences. This result will provide a means to easily transfer sparsity properties of one system to all other systems, thereby leading to several new results concerning sparsity properties of shearlets as well as allowing to reduce sparsity studies to the system easiest to analyze. (Received February 01, 2009)