

1047-42-34

Joseph D Lakey* (jlakey@nmsu.edu), Dept. of Mathematical Sciences, NMSU, Las Cruces, NM 88003-8001. *Time-frequency localization and sampling of multiband signals*. Preliminary report.

The classical "Bell Labs" theory considers spaces of signals that are essentially localized to a bounded interval in time and a bounded interval in frequency. Some communications applications could benefit from an extension of this theory to cases in which the frequency localization support is a finite union of intervals (multiband). Such extensions involve estimates of the decay of eigenvalues of compositions of time and frequency cutoffs and descriptions of the eigenvectors. We will offer some preliminary results relating decay of eigenvalues with the distribution of the frequency support. Numerical approximations of the projections expressed in terms of practical sampling methods and some connections with compressive sampling will also be considered. (Received December 09, 2008)