

1106-42-2126

**Alexander M Powell\***, Vanderbilt University, Department of Mathematics, Nashville, TN 37240,  
and **Tyler Whitehouse**. *Error bounds for consistent reconstruction.*

Consistent reconstruction is a technique for reconstructing a signal from a set of quantized linear measurements. We prove mean squared error bounds (MSE) for consistent reconstruction in the setting of random frames and under the uniform quantization noise model. In particular, we prove that the mean squared error for consistent reconstruction is of the order  $C/N^2$  where  $N$  is the frame size, and we prove bounds on the associated dimension dependent constant  $C$ . Our results require an analysis of random polytopes generated by affine hyperplanes and of associated coverage processes on the sphere. This is joint work with Tyler Whitehouse. (Received September 15, 2014)