1086-42-2755 **Alexander Elkholy*** (`aelkholy@asu.edu`). *Integral approximations in reconstructing functions from non-uniform Fourier data.* Preliminary report.

The reconstruction of piecewise continuous functions from non-uniform Fourier data has several applications, notably in the field of medical imaging. We are particularly interested in examining several methods of function reconstruction in the context of vector space frames. Specifically, we survey the accuracy of composite trapezoidal/Simpson's rule quadrature methods to generate an inverse frame approximation, and compare these to a new method that relies on Gauss-Hermite quadrature. This talk will include a brief theoretical discussion and computational results, as well as a short description of its applications to magnetic resonance imaging. (Received September 25, 2012)