1000-42-172 **Jeffrey Hogan\*** (`jeffh@uark.edu`), Department of Mathematical Sciences, University of Arkansas, Fayetteville, AR 72701, and **Joseph Lakey**, Department of Mathematical Sciences, New Mexico State University, P.O. Box 30001, Department 3MB, Las Cruces, NM 88003-8001. *An implementable frame-based algorithm for the irregular sampling of bandlimited data.* Preliminary report.

The Classical Sampling Theorem (CST) has long been the paradigmatic result of digital signal processing, allowing for the digitization of bandlimited signals. Unfortunately, the cardinal sine function decays slowly so that reconstructions obtained from the CST suffer from a lack of localization – samples taken far from a point $x$ of interest can affect the reconstruction at $x$. Furthermore, reconstruction of a bandlimited signal by the CST requires infinitely many samples which are necessarily uniformly spaced. In this talk we review several frame-based solutions of some of these difficulties due to Feichtinger, Gröchenig and Strohmer, and present a variation on their models and techniques which allows for an implementable, frame-based, iterative reconstruction from irregularly sampled data. (Received August 23, 2004)