Thesis Title: On the Reconstruction of 1D Signals from their Fourier Transform Phase or Magnitude--- with a Focus on Sparse Signal Reconstruction	Date: July 22,2009

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Abstract:

For the past couple of decades, reconstruction of the signals solely from the phase or magnitude of their Fourier Transform has been the topic of extensive research works. It is known that, unlike multidimensional signals, the reconstruction of one dimensional signals from their Fourier phase or magnitude is faced with an inherent dilemma. In this project, we will focus on the reconstruction of one dimensional sparse signals. The reconstruction of such signals is very dependent on the sparsity structure. In particular, we will present a novel idea to reconstruct a specific type of sparse signals which we call Time Division Multiplexing (TDM) signals. We show that such signals can be "uniquely" reconstructed from their Fourier Phase.