1116-42-2111 **Alexander B Reynolds*** (abreynolds@asu.edu), Phoenix, AZ. *Edge Detection from Spectral Phase Data.*

Accurate feature detection in signals is necessary in wide-ranging applications from medical imaging to computer vision. Spectral data is often collected in such applications, where many methods are used to extract information about the signal. The concentration factor method uses a first order relationship between the Fourier coefficients and jumps of a signal to devise filters that generate approximations which concentrate at the singular support of the signal, resulting in a highly customizable edge detector. This method has recently been expanded upon to detect edges in a signal given noisy, intermittent, or non-uniform Fourier data.

Typical feature detection algorithms rely on both the magnitude and phase of the collected Fourier data. However, the spectral phase carries particularly useful information about the features of a signal. Thus, the development of an edge detector using only phase data will be beneficial in applications where the magnitude information is not able to be collected or is otherwise corrupted. Recent numerical results have shown that concentration factors can be designed for these situations. An analysis of the method will lend insight to the accuracy of the phase-only edge detector and its robustness to noisy, non-uniform, or intermittent data. (Received September 21, 2015)