1062-42-218   **Bernhard G Bodmann*** (`bgb@math.uh.edu`), 651 Philip G Hoffman Hall, Mathematics Department, University of Houston, Houston, TX 77204, and **Christopher L Liner**, 312 Science & Research Building 1, Dept. of Earth and Atm. Sciences, University of Houston, Houston, TX 77204. *Signal recovery from the zero-crossings of the short-time Fourier transform.*

First, we review the effect of quasi-periodization on the short-time Fourier transform when the window function is a Gaussian. The zero-crossings of an appropriately periodized short-time Fourier transform determine a signal up to an overall constant factor if the signal is band-limited and has finitely many non-zero sample values. More generally, at least approximate recovery is possible if the signal is sufficiently concentrated in time and frequency. We investigate a strategy for deconvolution based on zero-crossings, assuming that the signal is in the Feichtinger algebra, that is, it has an integrable short-time Fourier transform, and additional sparseness properties. The deconvolution is implemented by fixing zero crossings in the pass band and by minimizing a cost functional subject to this constraint. (Received August 09, 2010)