

1023-F5-1213

Jong Chung* (aj1580@usma.edu), Dept of Math Sciences, US Military Academy, West Point, NY, and **Joseph D. Myers** and **Sebastien P. Joly**. *Simple Signal Processing in the Engineering Mathematics Classroom*.

Traditionally we introduce students of differential equations to the Fourier Transform by making the definitions, introducing a few manipulative theorems, and then applying to a couple of diffusion problems on 1-D unbounded domains. This tends to leave students with a very limited view of the transform, how it works, and what it is capable of. In this presentation we illustrate how we use elementary signal processing and compression in parallel with the standard presentation to help students gain a visceral understanding of the transform. This complementary approach helps students visualize the transforms (both Fourier and DFT), spectra, aliasing, timing of the FFT, smoothing and filtering, convolution and correlation, and basic image processing and compression. (Received September 26, 2006)