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Inmi Kim* (inmikim2@illinois.edu), University of Illinois at Urbana-Champaign, Department of Mathematics, 1409 W. Green St., Urbana, IL 61801. Gabor Frames with Trigonometric Spline Dual Windows, *in preparation*.

Abstract. A Gabor system is a collection of modulated and translated copies of a window function. A function in L^2 can be analyzed and then synthesized (reconstructed) with two different Gabor systems generated by a window g and a dual window h . This paper constructs explicit examples of Gabor dual windows having trigonometric form. The windows have fixed support and have an arbitrary smoothness. Further, we derive a sufficient condition on the norm of the modulation lattice to have explicit dual Gabor windows for every dimension. In the discrete time domain, our trigonometric form windows would allow us to evaluate the Gabor coefficients efficiently using the Discrete Fourier Transform. (Received November 11, 2010)