FEMTOSECOND DEMODULATION AS A SOURCE FOR A THZ SPECTROMETER

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A Low Temperature Grown GaAs Photo Conductive Switch (LTG GaAs PCS) is employed to demodulate femtosecond pulses from an 800 MHz mode-locked Ti:sapphire laser. The resulting radiation contains the high spectral purity Fourier components of the original pulse train. The current $\sim$ THz bandwidth limitation is due to the 270 femtosecond carrier lifetime in the LTG GaAs. The spectral purity, sources of noise, and system dependence on laser repetition rate will be discussed. Doppler limited rotational spectra at frequencies of $\sim$ 1 THz will be presented.