Pump-probe Sub-additivity in Photoelectron Emission from GaAs\textsuperscript{1} EVAN BRUNKOW, NATHAN CLAYBURN, HERMAN BATELAAN, TIMOTHY GAY, University of Nebraska- Lincoln — Using an autocorrelator and a pulsed laser with an 800 nm center wavelength, 10 nJ/pulse, and pulse duration of \(\sim 50\) fs at the target, we have shown that photoemission from GaAs induced by coherent pump and probe pulses with a temporal separation from 0 to 100 fs has a relationship that is more than additive. This implies that either the emission process is slower than 100 fs or that another process is occurring that affects the emission process itself [1]. We also have data with delays of \(\sim 0.5 - 16\) ps between the pump and probe that shows a sub-additive behavior, with a maximum effect of \(\sim 11\)% at 6 ps. We present several theories as to what is causing this effect.


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