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**Coherent Control of Strong Field Dynamics.** CARLOS TRALLERO, THOMAS WEINACHT, Stony Brook University, JAYSON COHEN, FOCUS, U. Michigan — We present experimental results on coherent control of multi-photon transitions in the strong field limit. A learning algorithm is capable of discovering shaped laser pulses which can compensate for dynamic Stark shifts and greatly outperform an unshaped laser pulse. We provide a comparison between experiments that use a spontaneous emission signal as feedback for the learning algorithm and ones that make use of a stimulated emission signal. Our experimental results are compared with calculations of the strong field dynamics.

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