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Electron-impact autoionization of helium in the presence of a laser field[1] N.L.S. MARTIN, L. LADINO, University of Kentucky, B.A. DEHARAK, Illinois Wesleyan University — We report experiments that examine the $2\ell 2\ell'$ helium autoionizing levels excited by electron impact in the presence of an Nd:YAG laser field of 1.17 eV photons. The absorption or emission of a photon during the autoionization process is expected to produce one or more "sidebands" integral numbers of photon energies above and below a main autoionizing peak in the *ejected* electron energy spectrum. (In a free-free scatting experiment it is the *scattered* electron spectrum that acquires sidebands). The experiments are being carried out with a tailor-made data acquisition system that records events in a stream of 12.5ns wide time-bins either side of each laser pulse, and also the energies of the ejected electrons. We have observed significant differences in the the "laser on" and "laser off" energy spectra, but these differences do not seem to be merely sideband effects. We are currently continuing to collect data to improve the counting statistics and we will present our updated results.

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