

Abstract Submitted
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COLTRIMS Studies of Correlation in the Sequential Release of Two Electrons from Ar and Ne by Short Laser Pulses¹ CHAKRA MAHARJAN, ALI ALNASER, XIAO TONG, PREDRAG RANITOVIC, SHAMBHU GHIMIRE, BING SHAN, ZENGHU CHANG, IGOR LITVINYUK, CHARLES COCKE, Kansas State University — We have measured momentum distributions of doubly charged argon and neon ions generated by circularly polarized short laser pulses. We measure the full vector Momenta of the ions using cold target recoil ion momentum spectroscopy (COLTRIMS). We use laser pulses centered at 800 nm wavelength, 8 fs pulse duration, 1KHz repetition rate with peak intensities between 0.1 and $2.2 \times 10^{16} \text{ W/cm}^2$. Marked structure in the momentum distributions is seen and interpreted as due to the sequential release of the first and second electrons at different times, and thus with different Momenta, during the rise of the pulse. The ion momentum distributions map the vector sum of the two Momenta, thus provide the fast clock for timing the relatives release times of the two electrons. From the measured spectra the release times of both electrons can be deduced. The results will be compared to model calculations.

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