

## ABSOLUTE CARRIER ENVELOPE PHASE MEASUREMENTS USING ION IMAGING

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Recently, an electron imaging apparatus that utilizes angular streaking was developed to directly determine the in-situ absolute CEP of ultrashort pulses without theory inputs [Debrah et al. Opt. Lett. 44, 14, 3582-3585, (2019)]. Here we demonstrate a different approach based on ion imaging. By measuring the angular distribution of the methyl cation arising from dissociative double ionization of methyl iodide, we observed a strong correlation between the CEPs of the laser pulses and the preferred ejection angle of methyl cation. Unlike electron imaging, complex effects due to Coulomb deflection and laser vector potentials are effectively suppressed. This development will improve the measurement of absolute CEP, which is important for strong field physics/chemistry and attosecond spectroscopy.