Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Theoretical study of strong field nonsequential double ionization of atoms[1] YAQIU LIANG, College of Physics, Liaoning University, Shenyang 110036, People's Republic of China, ZHANGJIN CHEN, C.D. LIN, J. R. Macdonald Laboratory, Physics Department, Kansas State University, Manhattan, Kansas 66506-2604, USA — We study the strong field nonsequential double ionization of atoms based on the recently developed quantitative rescattering theory and the traditional laser-free (e, 2e) theory. Both the correlated electron momentum spectra and the integrated longitudinal distribution of ions are evaluated. We found that Coulomb interaction between the two outgoing electrons plays a crucial rule in the correlated electron momentum spectra while the longitudinal momentum distribution of ions is insensitive to how the two outgoing electrons are treated. In addition, the CEP (carrier envelope phase) dependence of the ion momentum distribution is also investigated.

[1]This work was supported in part by Chemical Sciences, Geosciences and Biosciences Division, Office of Basic Energy Sciences, Office of Science, US Department of Energy. Y Liang was also supported by financial aids from China Scholarship Council.

Zhangjin Chen

Date submitted: 22 Jan 2010 Electronic form version 1.4