Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Measuring the intensity of intense laser pulses at the few-percent level[1] STEFAN ZIGO, YUJUN WANG, JAN TROSS, PEYMAN FEIZOLLAH, BEN BERRY, YUBARAJ MALAKAR, RAJESH KUSHAWAHA, VINOD KUMARAPPAN, ARTEM RUDENKO, ITZIK BEN-ITZHAK, BRETT ESRY, CARLOS TRALLERO-HERRERO, Kansas State University — Strong-field measurements are often frustratingly difficult to reproduce quantitatively either through further experiment or through comparison with theory. One of the reasons for this difficulty is the large uncertainty that typically accompanies the measurement of an intense laser pulse's peak intensity, which often falls in the tens of percent range. Despite many attempts, there remains no readily accessible way to do better. And, since most strong-field processes of interest are highly nonlinear, small changes in intensity can translate to large changes in the outcome. The trick, of course, is to use this sensitivity as the measurement—but one needs a reliable calibration curve to compare with. We aim to develop a technique based on the total ionization yield of argon that can be easily implemented yet provides intensity measurements at the few-percent level through comparison with carefully calibrated solutions of the time-dependent Schrodinger equation.

[1]This proposal was supported by the Chemical Sciences, Geosciences, and Biosciences Division, Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy (DOE).

Stefan Zigo
Kansas State University

Date submitted: 30 Jan 2015 Electronic form version 1.4