Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Examining the role of the feedback signal in closed-loop control of molecular fragmentation[1] B. JOCHIM, R. AVERIN, N. GREGERSON, M. TODT, E. WELLS, Department of Physics, Augustana College, Sioux Falls, SD 57197 USA, J. MCKENNA, S. DE, M. ZOHRABI, A.M. SAYLER, B. GAIRE, D. RAY, K.D. CARNES, J.R. Macdonald Laboratory, Kansas State University, Manhattan, KS 66506 USA, M.F. KLING, J.R. Macdonald Laboratory, Kansas State University, Manhattan, KS 66506 USA and Max Planck Institute of Quantum Optics, Garching, Germany, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Kansas State University, Manhattan, KS 66506 USA — Closed-loop control schemes incorporating feedback algorithms and shaped ultrafast laser pulses have been used to control a number of molecular processes. Using carbon monoxide as a model system, we have examined how the type of feedback signal delivered to the algorithm can influence the level of control and in some cases, help provide a better understanding of how the control is accomplished. Several feedback methods were examined, including using time-of-flight to select dissociation channels by kinetic energy release, isolating the $C^+ + O^+$ channel using a coincidence time-of-flight technique and using velocity map imaging to provide multi-dimensional momentum information in the feedback loop.

[1]Supported by National Science Foundation award PHYS-0653598 and the Chemical Sciences, Geosciences and Biosciences Division, Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy.

Eric Wells
Department of Physics, Augustana College, Sioux Falls, SD 57197

Date submitted: 25 Jan 2010 Electronic form version 1.4