

Abstract Submitted  
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**Strong-field induced bond rearrangement in triatomic molecules<sup>1</sup>**

S. ZHAO, E. WELLS, Department of Physics, Augustana University, Sioux Falls, SD 57197 USA, BETHANY JOCHIM, PEYMAN FEIZOLLAH, JYOTI RAJPUT, F. ZIAEE, KANAKA RAJU P., B. KADERIYA, K. BORNE, Y. MALAKAR, BEN BERRY, J. HARRINGTON, D. ROLLES, A. RUDENKO, K.D. CARNES, I. BEN-ITZHAK, T. SEVERT, J.R. Macdonald Laboratory, Department of Physics, Kansas State University, Manhattan, KS 66506 USA — A comparative study of strong-field induced bond rearrangement is carried out for three triatomic molecules: carbon dioxide ( $\text{CO}_2$ ), carbonyl sulfide ( $\text{OCS}$ ), and water ( $\text{D}_2\text{O}$ ). Specifically, we use COLTRIMS to measure the branching ratio for the formation of  $\text{AC}^+$  from  $\text{ABC}^{2+}$  following double ionization by intense, short (23 fs, 790 nm) laser pulses. Our study shows that the branching ratio of  $\text{D}_2\text{O}^{2+} \rightarrow \text{D}_2^+ + \text{O}^+$  is higher than that of  $\text{CO}_2^{2+} \rightarrow \text{O}_2^+ + \text{C}^+$ , which in turn is higher than that of  $\text{OCS}^{2+} \rightarrow \text{SO}^+ + \text{C}^+$ , although all three values are within an order of magnitude of each other. Additionally, we examined the isotopic and linear-chirp dependencies of bond rearrangement in water.

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