Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Electronic Supplementary Information for Dissociative photodetachment dynamics of the oxalate monoanion

J. A. Gibbard,[a] E. Castracane,[a] A. J. Shin[a] and R. E. Continetti[a]

[a] Department of Chemistry and Biochemistry, University of California, San Diego, 9500 Gilman Dr, La Jolla, Ca, 92093. E-mail: rcontinetti@ucsd.edu

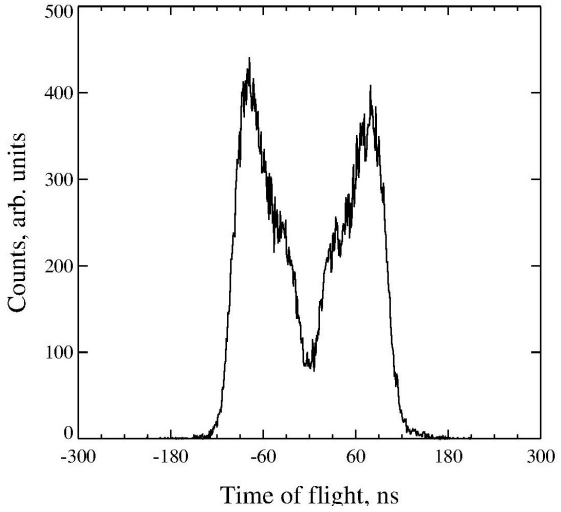

Figure S1: Time of flight spectrum for two neutral fragments produced in the dissociative photodetachment (DPD) of 11 keV $C_2O_4H^-$ at 266 nm.

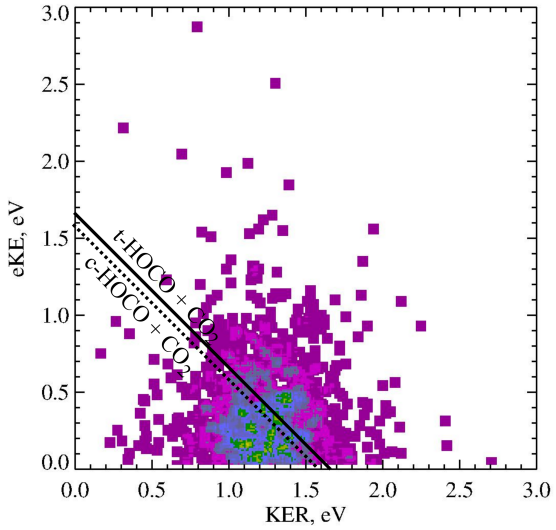

Figure S2: PPC spectrum for two neutral fragments produced in the DPD of 11 keV $C_2O_4H^-$ at 258 nm, with the black lines depicting the KE_{max} for the higher photon energy.

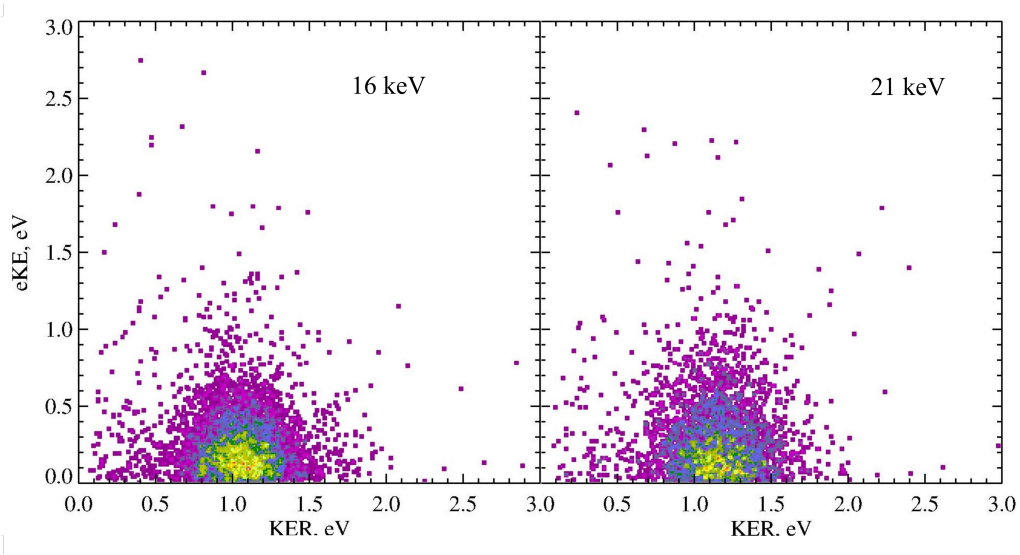

Figure S3: PPC spectrum for two neutral fragments produced in the DPD of 16 keV and 21 keV $C_2O_4H^-$ at 266 nm.

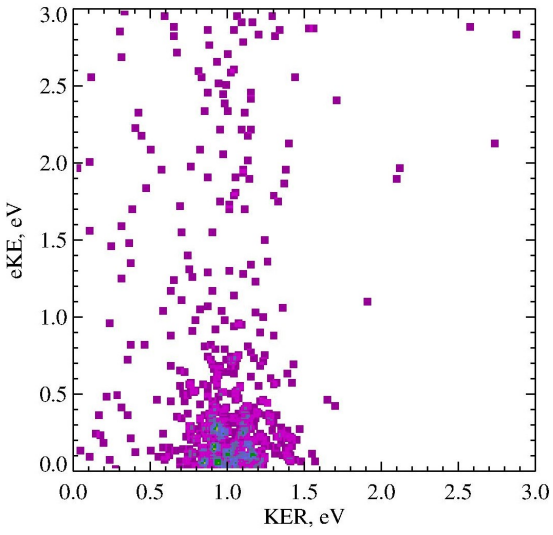

Figure S4: PPC spectrum for two neutral fragments produced in the DPD of 21 keV $C_2O_4D^-$ at 266 nm.

$$V = D_e\left(1 - e^{\left(-a\left(R-R_e\right)\right)}\right)^2 \tag{S1}$$

Equation 1: The Morse potential used to describe the bound anion surface where D_e is the well depth, a is the fitting parameter and R_e is the anion equilibrium bond length.

D_e eV	a Å^{-1}	R_e Å
1.78	2.75	1.58

Table S1: The constants for the Morse potential used to describe the bound anion surface as described in equation 1 where D_e is the well depth, a is the fitting parameter and R_e is the anion equilibrium bond length.

$$V = D_a + Ae^{\left(-a\left(R-R_e\right)\right)} \tag{S2}$$

Equation 2: The repulsive exponential potential for the repulsive neutral surface where D_{aa} is the energy between the anion ground state and the dissociation asymptote, D_{an} is the energy between the dissociation asymptote and the photon energy, a is the fitting parameter and R_e is the anion equilibrium bond length.

D_{aa} eV	D_{an} eV	a Å^{-1}	R_e Å
3.15	1.80	4	1.58

Table S2: The constants for the repulsive exponential potential for the repulsive neutral surface as described in equation 2, where D_{aa} is the energy between the anion ground state and the dissociation asymptote, D_{an} is the energy between the dissociation asymptote and the photon energy, a is the fitting parameter and R_e is the anion equilibrium bond length.