Multiphoton Rydberg & valence dynamics of CH_3Br probed by Mass Spectrometry and Slice Imaging

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Supplementary information

Content: **pages:**

Fig. S1:

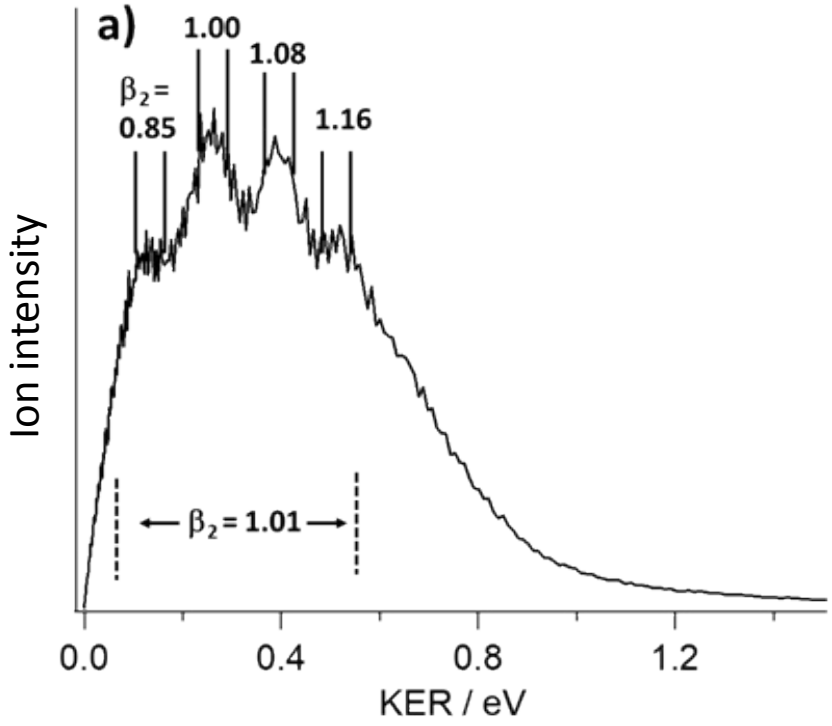

Figure S1-a: *CH_3 KER spectrum for peak 1, found in 2hv REMPI spectra at 66019 cm^{-1}.*

Fig. S1:

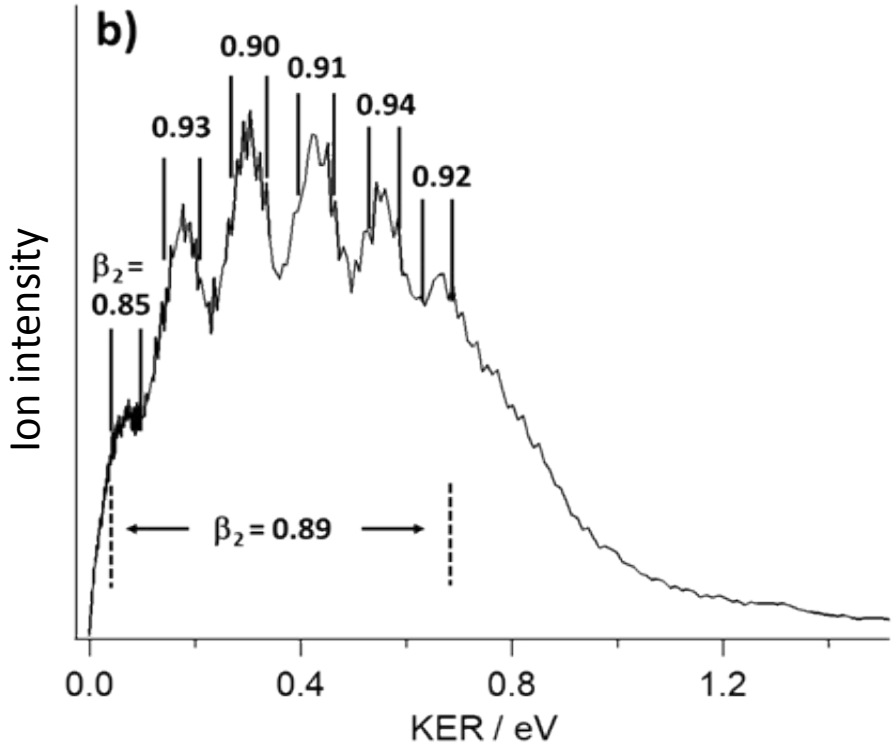

Figure S1-b: *CH_3 KER spectrum for peak 2, found in 2hv REMPI spectra at 66503 cm^{-1}.*

Fig. S1:

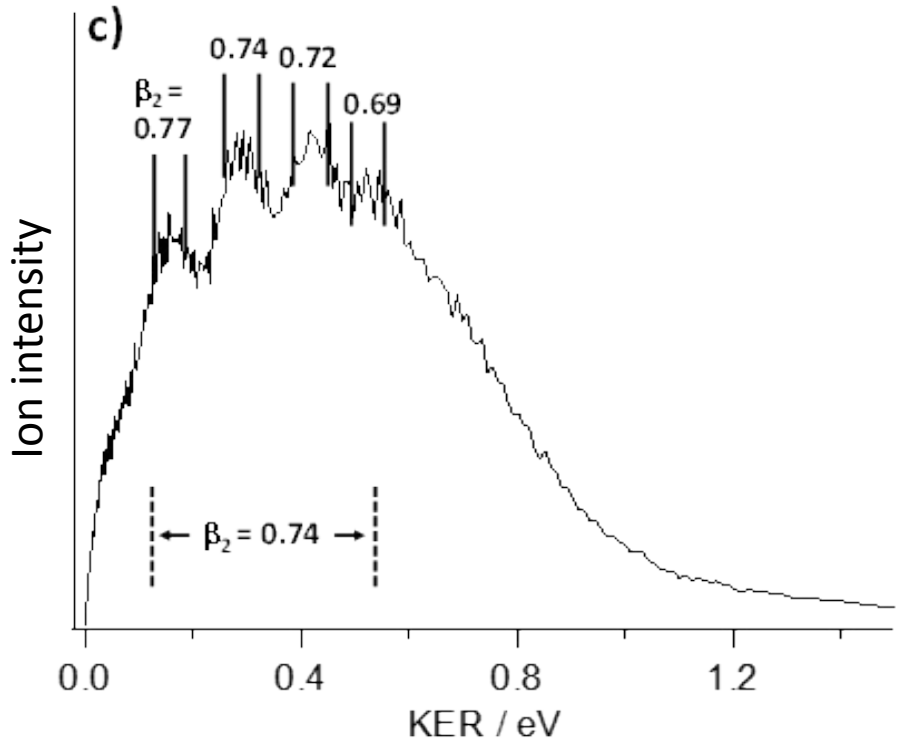

Figure S1-c: *CH_3 KER spectrum for peak 3, found in 2hv REMPI spectra at 67275 cm^{-1}.*

Fig. S1:

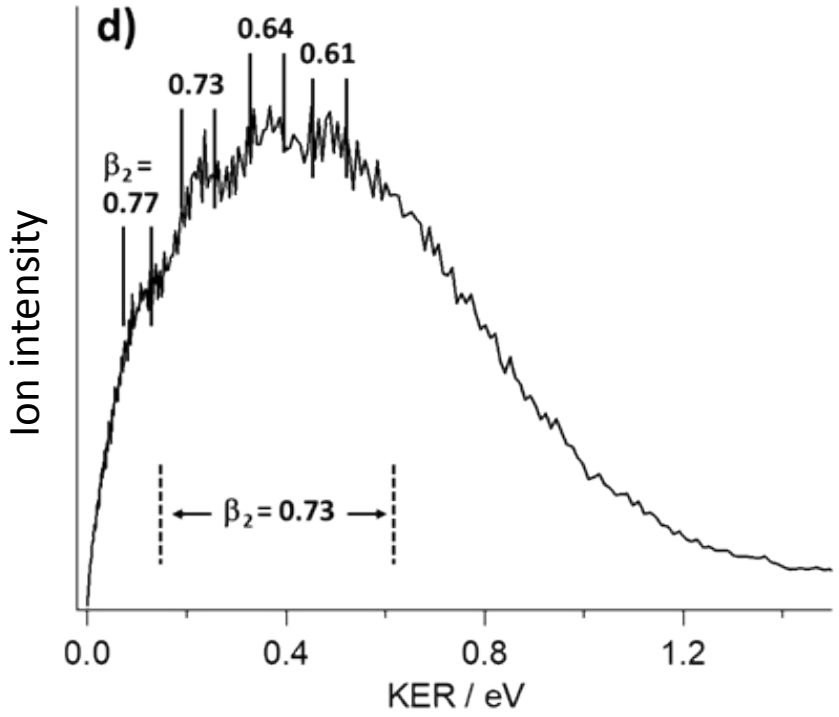

Figure S1-d: *CH_3 KER spectrum for peak 4, found in 2hv REMPI spectra at 68684 cm^{-1}.*

Fig. S1:

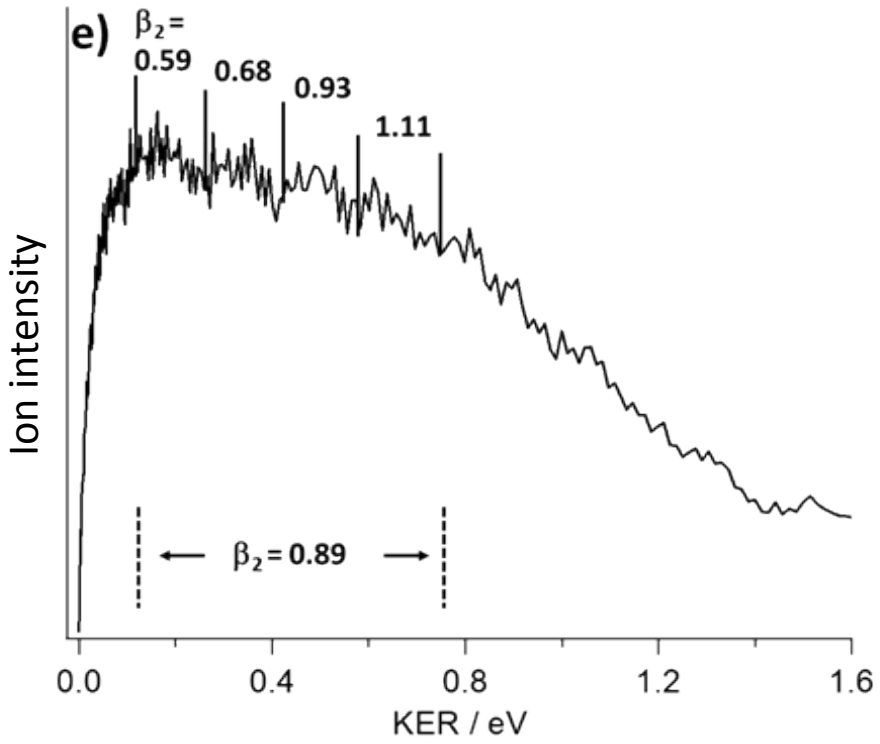

Figure S1-e: *CH_3 KER spectrum for peak 5, found in 2hv REMPI spectra at 72977 cm^{-1}.*

Fig. S1:

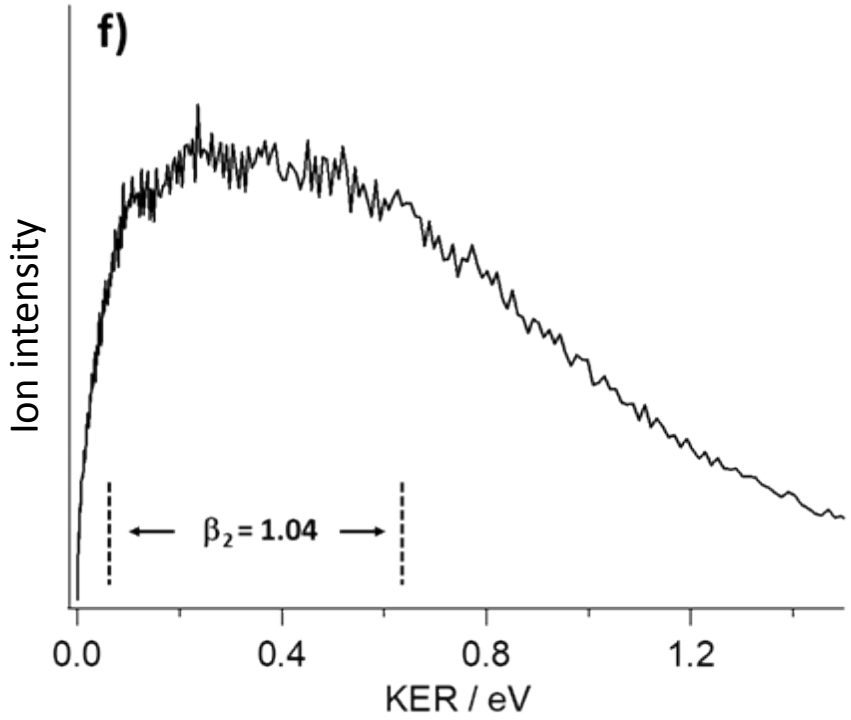

Figure S1-f: *CH_3 KER spectrum for peak 6, found in 2hv REMPI spectra at 74249 cm^{-1}.*

Fig. S1:

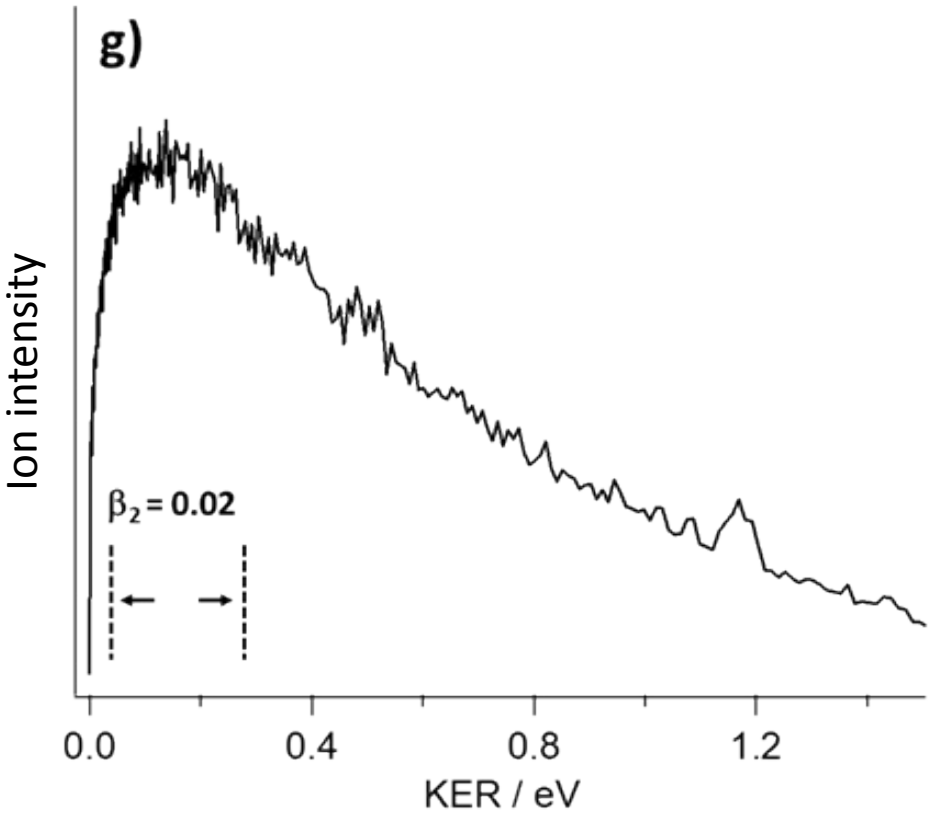

Figure S1-g: *CH_3 KER spectrum for peak 7, found in 2hv REMPI spectra at 75905 cm^{-1}.*

Fig. S1:

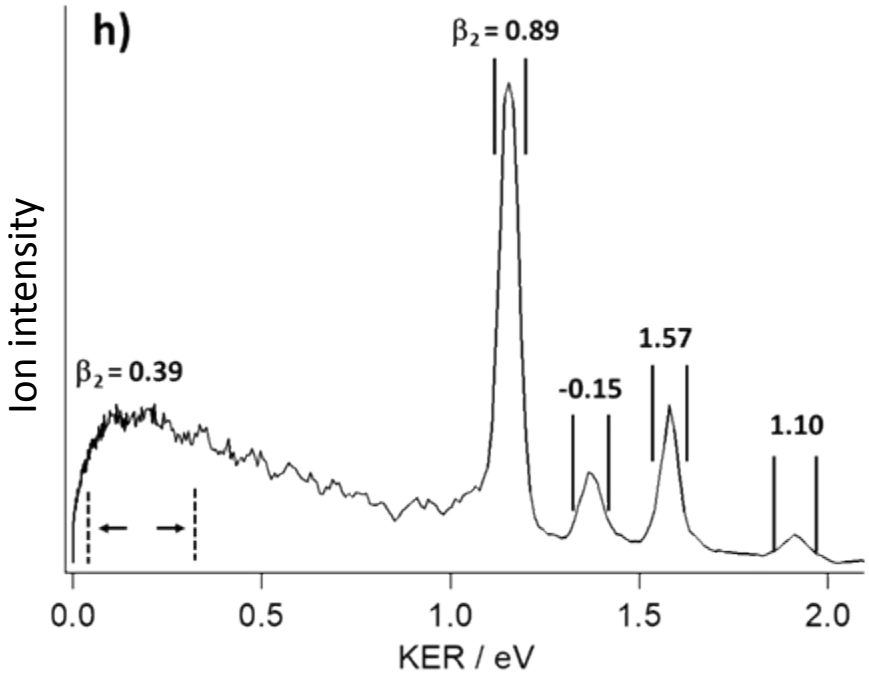

Figure S1-h: *CH_3 KER spectrum for peak 8, found in 2hv REMPI spectra at 77165 cm^{-1}.*

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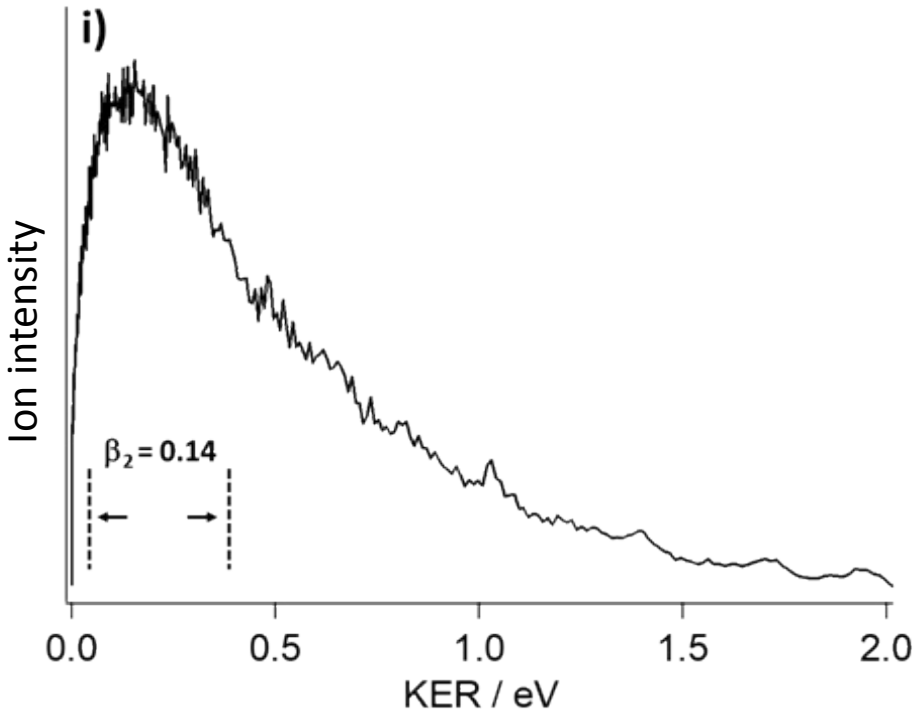

Figure S1-i: *CH_3 KER spectrum for peak 9, found in 2hv REMPI spectra at 78370 cm^{-1}.*

Fig. S1:

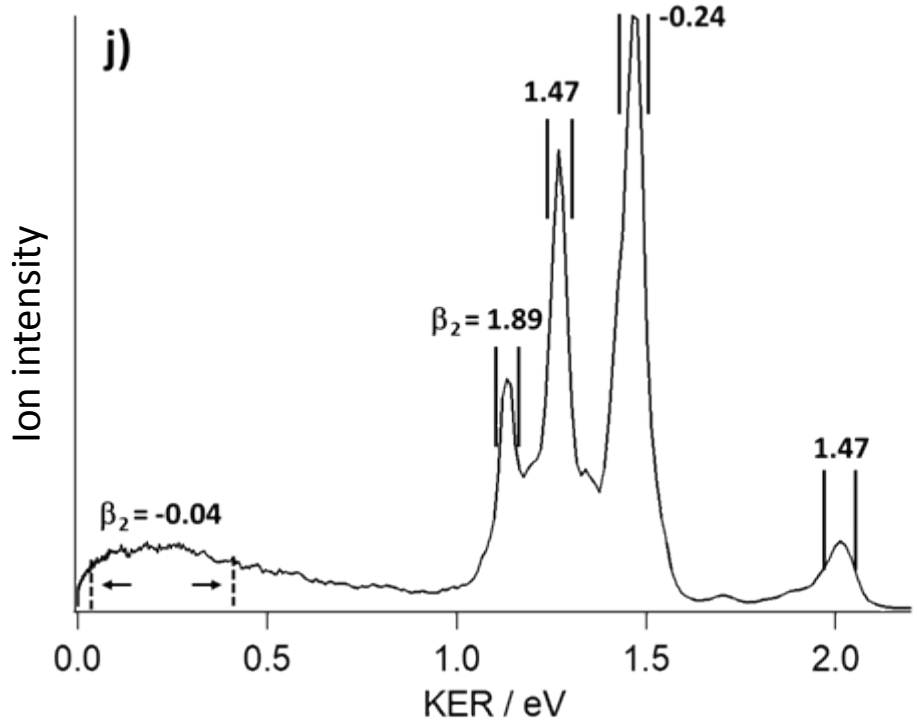

Figure S1-j: *CH_3 KER spectrum for peak 10, found in 2hv REMPI spectra at 79610 cm^{-1}.*

Fig. S2:

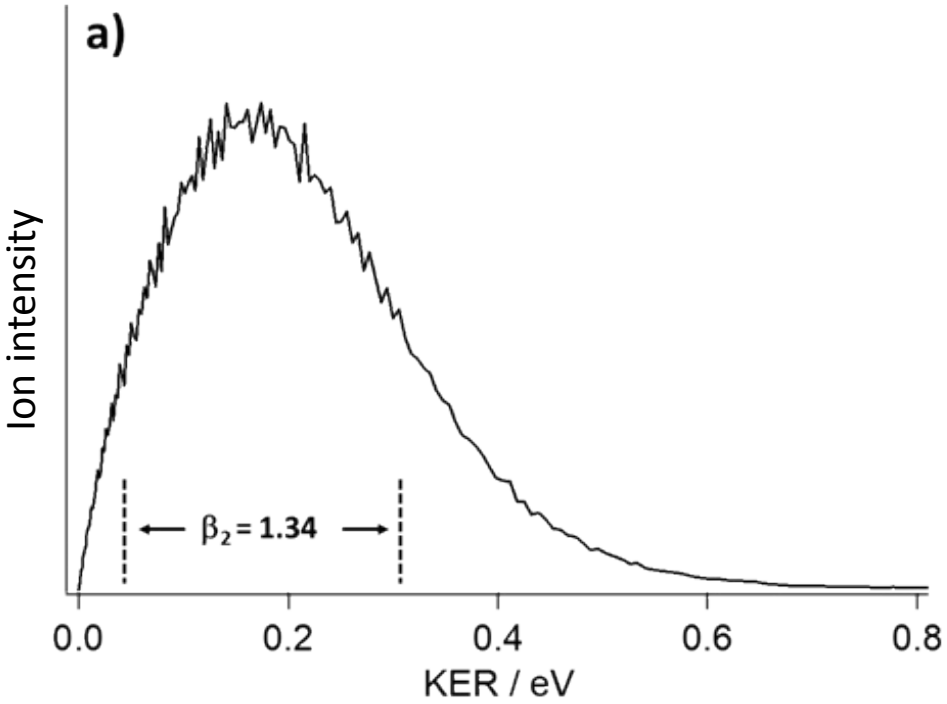

Figure S2-a: *Br KER spectrum for peak 1, found in 2hv REMPI spectra at 66019 cm^{-1}.*

Fig. S2:

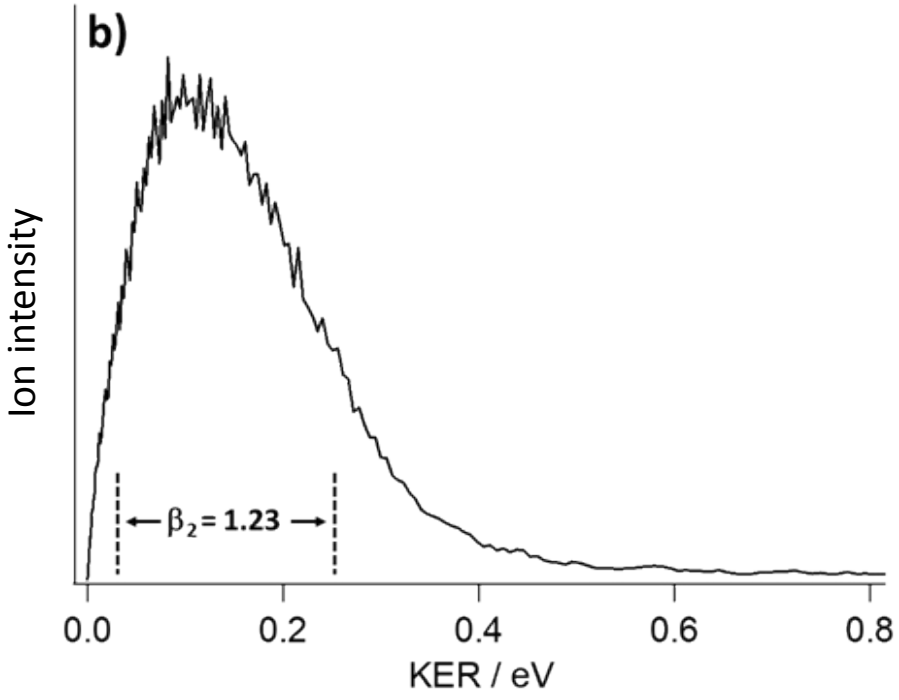

Figure S2-b: *Br KER spectrum for peak 3, found in 2hv REMPI spectra at 67275 cm^{-1}.*

Fig. S2:

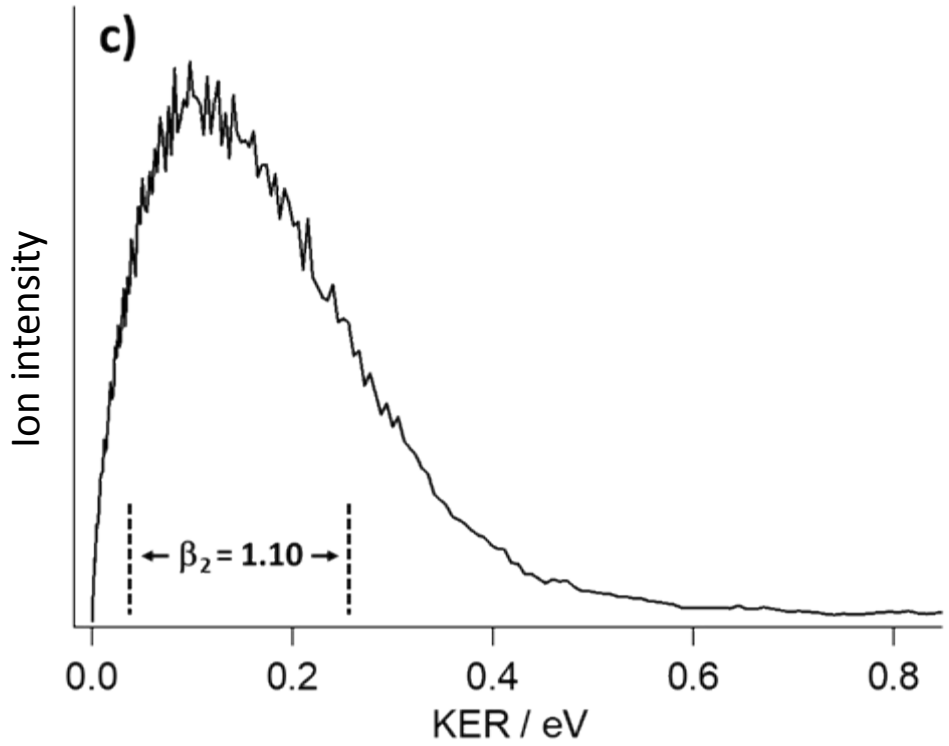

Figure S2-c: *Br KER spectrum for peak 4, found in 2hv REMPI spectra at 68684 cm^{-1}.*

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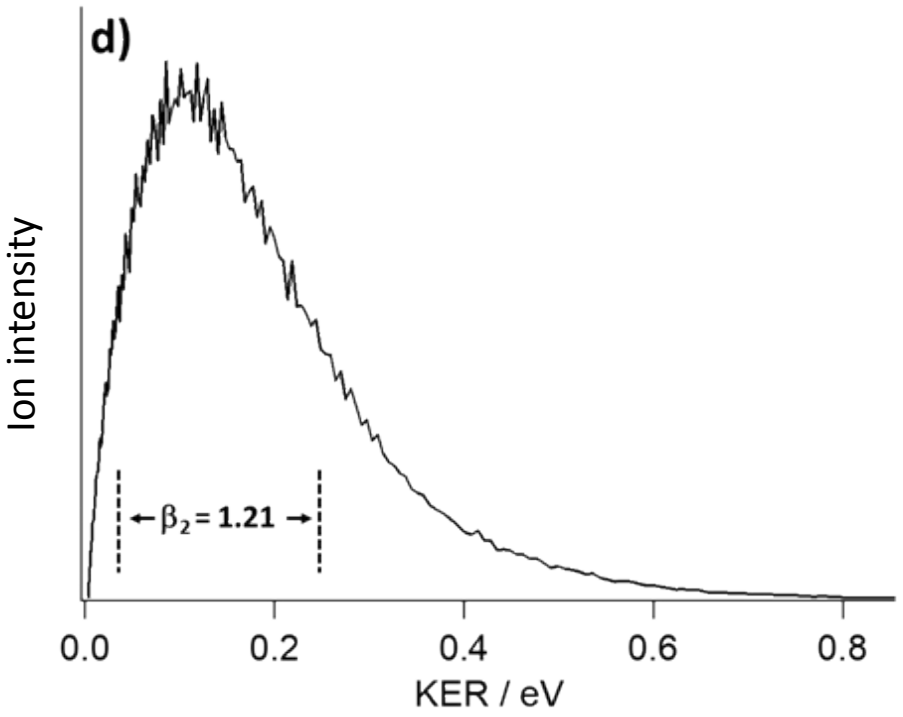

Figure S2-d: *Br KER spectrum for peak 5, found in 2hv REMPI spectra at 72977 cm^{-1}.*

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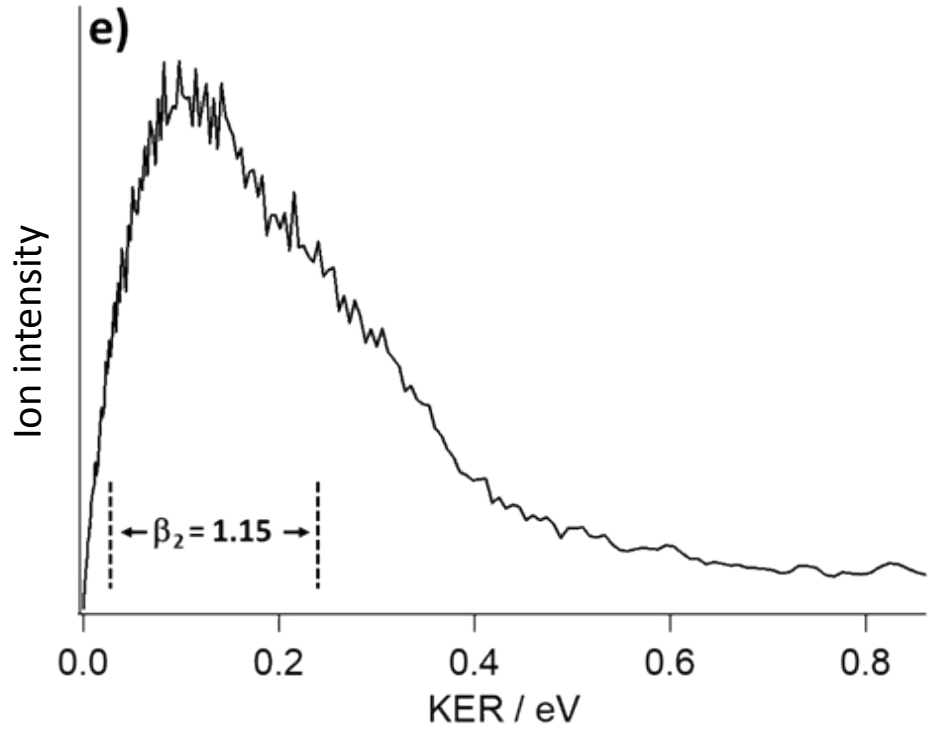

Figure S2-e: *Br KER spectrum for peak 7, found in 2hv REMPI spectra at 75905 cm^{-1}.*

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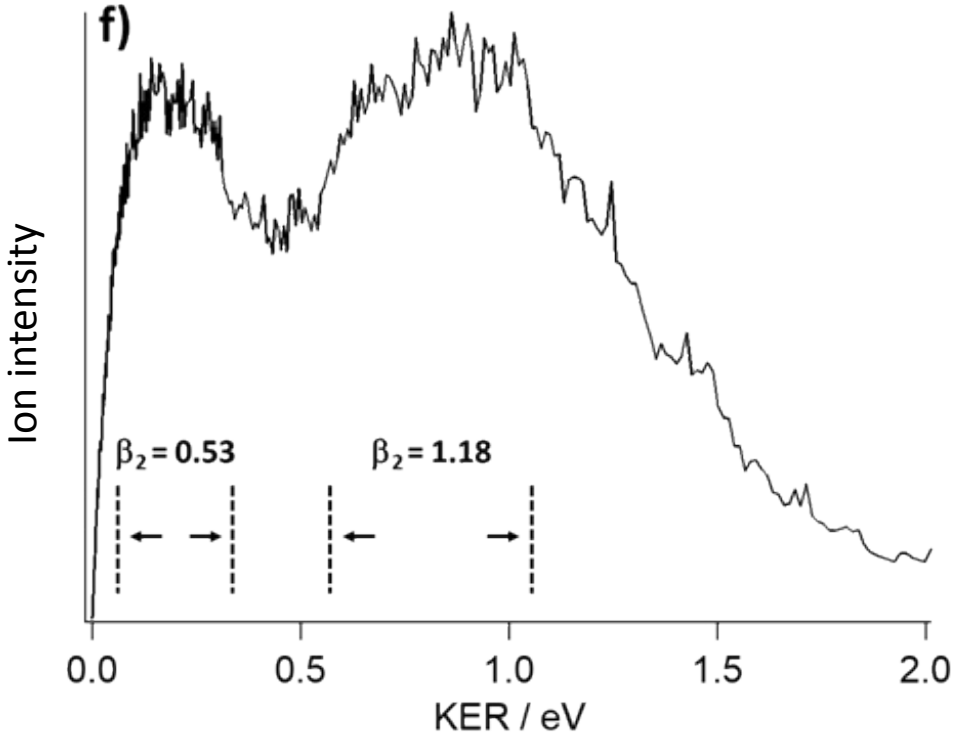

Figure S2-f: *Br KER spectrum for peak 8, found in 2hv REMPI spectra at 77165 cm^{-1}.*

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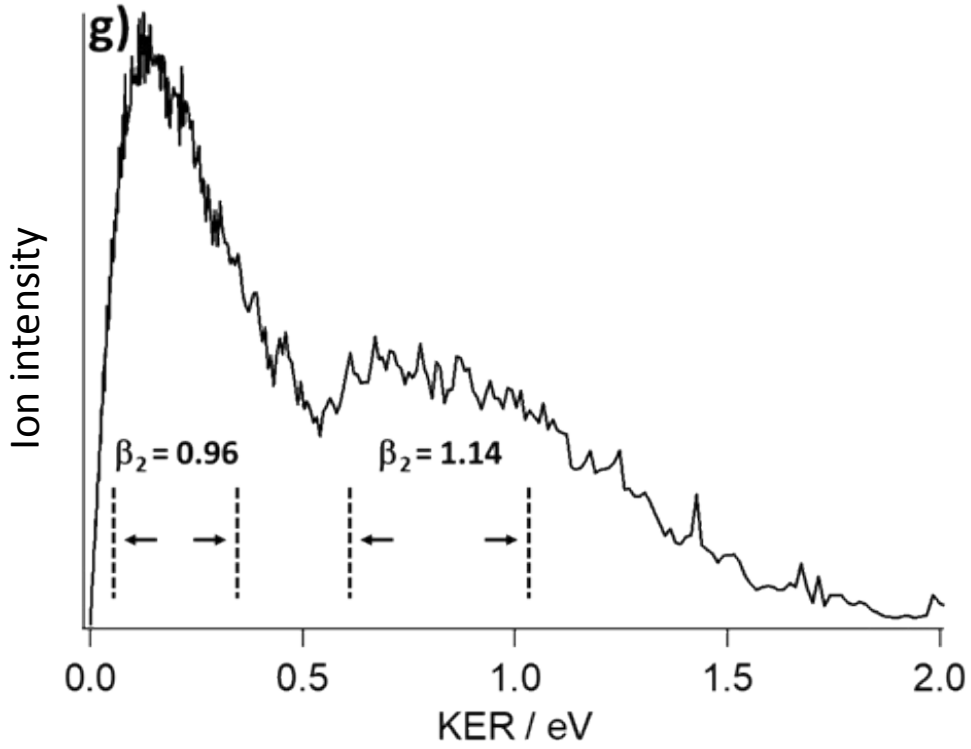

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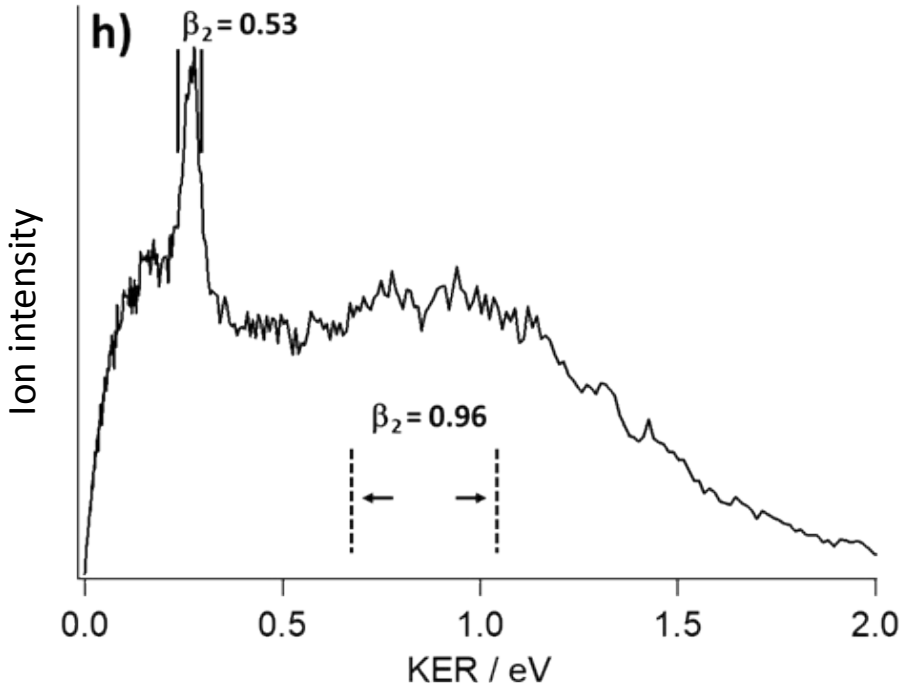

Figure S2-h: *Br KER spectrum for peak 10, found in 2hv REMPI spectra at 79610 cm^{-1}.*

Tables S1 a):

CH_3

	1			2			3			4		
	beta	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**
β_2	1.01	±0.01	0.098-0.533	0.89	±0.02	0.055-0.653	0.74	±0.02	0.133-0.533	0.73	±0.03	0.153-0.612
β_4	-0.38			-0.40			-0.45			-0.44		

	5			6			7			8		
	beta	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**
β_2	0.77	±0.01	0.126-0.788	1.04	±0.01	0.058-0.628	0.02	±0.01	0.024-0.272	0.39	±0.01	0.044-0.392
β_4	-0.07			-0.09			-0.03			-0.12		

	9			10		
	beta	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**
β_2	0.14	±0.01	0.021-0.392	-0.04	±0.01	0.018-0.453
β_4	-0.02			-0.02		

Tables S1 b):

Br

	1			2			3			4		
	beta	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**
β_2	1.34	±0.18	0.05-0.311		N/A		1.23	±0.01	0.033-0.235	1.10	±0.01	0.030-0.245
β_4	0.71				N/A		-0.10			-0.08		

	5			6			7		
	beta	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**
β_2	1.21	±0.01	0.055-0.220		N/A		1.15	±0.02	0.044-0.220
β_4	0.04				N/A		-0.05		

	8			9			10		
	beta	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**	***beta***	Δ	**KER[eV]**
β_2	0.53	±0.01	0.068-0.329	0.96	±0.02	0.050-0.329	0.31	±0.04	0.240-0.294
β_4	0.02			0.03			0.06		
β_2	1.18	±0.06	0.533-1.088	1.14	±0.06	0.612-1.088	1.20	±0.09	0.696-1.088
β_4	0.04			-0.15			0.15		