Erratum: Doppler spectroscopy of chlorine atoms generated from photodissociation of hydrogen chloride and methyl chloride at 157 and 193 nm [J. Chem. Phys. 92, 1696 (1990)]

Cite as: J. Chem. Phys. **97**, 5261 (1992); https://doi.org/10.1063/1.463999
Published Online: 31 August 1998

Yutaka Matsumi, Puspendu Kumar Das and Masahiro Kawasaki

Erratum: Doppler spectroscopy of chlorine atoms generated from photodissociation of hydrogen chloride and methyl chloride at 157 and 193 nm [J. Chem. Phys. 92, 1696 (1990)]

Yutaka Matsumi, Puspendu Kumar Das, and Masahiro Kawasaki
Laboratory of Physical Chemistry, Research Institute of Applied Electricity, Hokkaido University, N12W6, Sapporo 060, Japan

Erratum: Photodissociation of hydrogen chloride and hydrogen bromide [J. Chem. Phys. 93, 7981 (1990)]

Yutaka Matsumi, Kenichi Tonokura, and Masahiro Kawasaki
Institute of Applied Electricity, Hokkaido University, N12W6, Sapporo 060, Japan

Toshio Ibuki
Institute for Chemical Research, Kyoto University, Uji, Kyoto 611, Japan

Erratum: Fine structure branching ratios and Doppler spectroscopy of chlorine atoms from the photodissociation of alkyl chlorides and chlorofluoromethanes at 157 and 193 nm [J. Chem. Phys. 94, 2669 (1991)]

Yutaka Matsumi, Kenichi Tonokura, and Masahiro Kawasaki
Institute of Applied Electricity, Hokkaido University, N12W6, Sapporo 060, Japan

Gen Inoue
National Institute for Environmental Studies, Tsukuba 315, Japan

Sunita Satyapal and Richard Bersohn
Department of Chemistry, Columbia University, New York, New York 10027

The reported fine structure branching ratios for $[Cl^*(^2P_{1/2})]/[Cl(^2P_{3/2})]$ in HCl, DCl, and alkyl chlorides obtained by (2+1) resonance enhanced multiphoton ionization (REMPI) at 235 and 238 nm are incorrect. In these three papers the ratio of populations was assumed to be the ratio of the REMPI signals.[1] A remeasurement of the branching ratios by laser induced fluorescence of Cl* and Cl in the vacuum uv region shows that the ratio of populations for equal Cl* and Cl REMPI intensities is 2.5 ± 0.1 instead of unity.[2] With this correction we have obtained the data of Table I. The branching ratio for Cl atoms dissociated from HCl at 193 nm is 0.50 ± 0.05 which is in agreement with that obtained by Tiemann *et al.*[3] and Park *et al.*[4] using ir absorption spectroscopy by the diode laser technique.

TABLE I. Branching ratios of $[Cl^*(^2P_{1/2})]/[Cl(^2P_{3/2})]$ from the photodissociation of hydrogen chloride and chlorinated halomethanes at 157 and 193 nm.

Molecules	$[Cl^*(^2P_{1/2})]/[Cl(^2P_{3/2})]$[a] 157 nm	193 nm
HCl	0.88 (13)	0.50 (5)
DCl	0.28 (8)	0.20 (8)
CH_3Cl	0.65 (13)	0.58 (5)
CD_3Cl	0.50 (5)	0.65 (13)
C_2H_5Cl	0.50 (13)	0.65 (13)
n-C_3H_7Cl	0.43 (5)	0.70 (10)
n-C_4H_9Cl	0.60 (13)	0.50 (8)
CH_2Cl_2	0.45 (13)	0.25 (5)
CD_2Cl_2	0.45 (10)	0.23 (5)
$CHCl_3$	0.60 (5)	0.25 (5)
$CDCl_3$	0.53 (18)	0.30 (5)
CCl_4	<0.13	0.30 (10)
CF_3Cl	<0.13	...
CF_2Cl_2	<0.13	0.23 (3)
$CFCl_3$	<0.13	0.30 (8)

[a]Numbers in parentheses are one standard deviation for the last one or two digits of the data.

[1] Y. Matsumi, M. Kawasaki, T. Sato, T. Kinugawa, and T. Arikawa, Chem. Phys. Lett. **155**, 486 (1989).
[2] K. Tonokura, Y. Matsumi, M. Kawasaki, S. Tasaki, and R. Bersohn (to be published).
[3] E. Tiemann, H. Kanamori and E. Hirota, J. Chem. Phys. **88**, 2457 (1988).
[4] J. Park, Y. Lee, and G. W. Flynn, Chem. Phys. Lett. **186**, 441 (1991); **192**, 138 (1992).

 0021-9606/92/195261-01$006.00