Erratum Vol. 24, No. 17 | 22 Aug 2016 | OPTICS EXPRESS 19122
Optics EXPRESS

Beam deflection measurement of bound-electronic and rotational nonlinear refraction in molecular gases: erratum

MATTHEW REICHERT,[1,3,5] PENG ZHAO,[1,5] JENNIFER M. REED,[1,4] TRENTON R. ENSLEY,[1] DAVID J. HAGAN,[1,2] AND ERIC W. VAN STRYLAND[1,2,*]

[1]*CREOL, College of Optics and Photonics, University of Central Florida, Orlando, Florida 32816, USA*
[2]*Department of Physics, University of Central Florida, Orlando, Florida 32816, USA*
[3]*Current address: Department of Electrical Engineering, Princeton University, Princeton, New Jersey 08455, USA*
[4]*Current address: Air Force Research Laboratory/RXAP, Wright-Patterson Air Force Base, Ohio 45433, USA*
[5]*These authors contributed equally to this work*
**ewvs@creol.ucf.edu*

Abstract: We provide an updated comparison of second hyperpolazability of carbon disulfide reported in [Opt. Express, **23**(17), 22224 (2015)] to local field corrected liquid phase measurements based on the recent erratum [Optica **3**(6), 657 (2016)].

OCIS codes: (190.7110) Ultrafast nonlinear optics; (190.3270) Kerr effect; (190.5650) Raman effect; (350.3250) Isotope separation; (300.6240) Spectroscopy, coherent transient.

References and Links

1. M. Reichert, H. Hu, M. R. Ferdinandus, M. Seidel, P. Zhao, T. R. Ensley, D. Peceli, J. M. Reed, D. A. Fishman, S. Webster, D. J. Hagan, and E. W. Van Stryland, "Temporal, spectral and polarization dependence of the nonlinear optical response of carbon disulfide," Optica **1**(6), 436 (2014).
2. M. Reichert, H. Hu, M. R. Ferdinandus, M. Seidel, P. Zhao, T. R. Ensley, D. Peceli, J. M. Reed, D. A. Fishman, S. Webster, D. J. Hagan, and E. W. Van Stryland, "Temporal, spectral and polarization dependence of the nonlinear optical response of carbon disulfide: erratum," Optica **3**(6), 657 (2016).
3. M. Reichert, P. Zhao, J. M. Reed, T. R. Ensley, D. J. Hagan, and E. W. Van Stryland, "Beam deflection measurement of bound-electronic and rotational nonlinear refraction in molecular gases," Opt. Express **23**(17), 22224–22237 (2015).

The liquid phase measurements of the bound-electronic nonlinear refractive index $n_{2,el}$ reported in [1] have been corrected by subtracting the cuvette contribution to the measurement [2]. Here we reproduce Table 4 (Table 1 here) from [3] with these corrected values, which further improves agreement between gas and liquid phase measurements of the second hyperpolarizability γ.

Table 1. Comparison of γ of CS_2 from gas and liquid measurements.

	Gas Phase	Liquid Phase [2]
$\gamma / (\Delta\alpha)^2$ (10^{16} J^{-1})	17 ± 4	–
γ (10^{-62} C^4m^4/J^3)	19 ± 4	17 ± 5
γ (10^{-37} esu)	15 ± 3	14 ± 4
$\gamma(CS_2) / \gamma(N_2)$	17 ± 4	15 ± 4

Funding

Funding was provided by the Air Force Office of Scientific Research (AFOSR) (FA9550-10-1-0558) and the National Science Foundation (NSF) (ECCS- 1229563, ECCS-1202471).

#273003 http://dx.doi.org/10.1364/OE.24.019122
Journal © 2016 Received 3 Aug 2016; published 9 Aug 2016