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Abstract: We correct the value for the nonlinear Kerr effect of the silicon-rich nitride waveguide presented in Opt. Express **23**, 25828 (2015).

OCIS codes: (130.3120) Integrated optics devices; (130.7405) Wavelength conversion devices; (160.6000) Semiconductor materials; (190.4380) Nonlinear optics, four-wave mixing; (220.4241) Nanostructure fabrication; (230.5750) Resonators.

References and links

1. C. J. Krückel, A. Fülöp, T. Klintberg, J. Bengtsson, P. A. Andrekson, and V. Torres-Company, "Linear and nonlinear characterization of low-stress high-confinement silicon-rich nitride waveguides," Opt. Express **23**(20), 25828–25837 (2015).

In [1], we presented an experimental study of the linear and nonlinear properties of silicon-rich nitride waveguides fabricated via low-pressure chemical vapor deposition (LPCVD). Owing to an error in the estimated coupled power in the two-pump experiment, we have overestimated the nonlinear Kerr parameter of the waveguide. The corrected Fig. 4(d) should be:

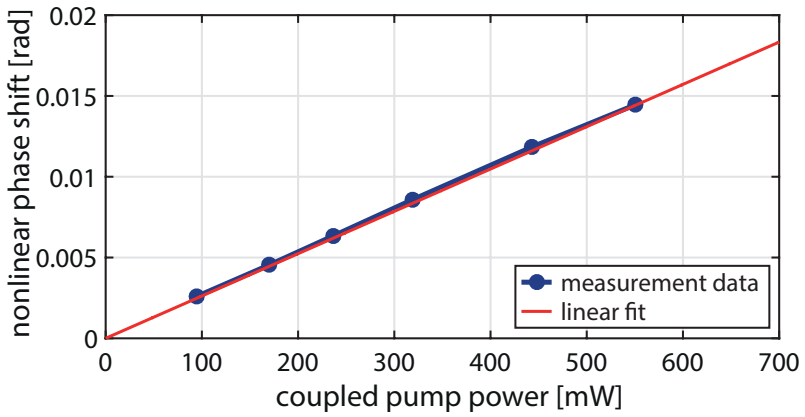

Fig. 1. Nonlinear phase shift φ_{SPM} as a function of coupled pump power.

From this figure we infer a nonlinear parameter $\gamma = 3$ $(W \cdot m)^{-1}$ leading to a nonlinear coefficient $n_2 = 0.6 \cdot 10^{-18}$ m^2/W.

The Table 1 should therefore look as follows

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Table 1. Comparison of nonlinear Kerr coefficient n_2 and optical band gap energy E_g for silicon, silicon-enriched nitride and stoichiometric silicon nitride.

		n_2 (at 1.5 μm) [m^2/W]	E_g [eV]
Si [24,25]	(100% Si)	$\sim 4 \cdot 10^{-18}$	1.12
Si_xN_y	(65% Si)	$0.6 \cdot 10^{-18}$	2.3
Si_3N_4 [22,27]	(43% Si)	$0.24 \cdot 10^{-18}$	~ 5

The main conclusion in [1] is still valid. Varying the relative composition between silicon and nitride during LPCVD deposition provides a higher Kerr coefficient than what is possible with stoichiometric silicon nitride.