

## Author Correction: Ladder of Eckhaus instabilities and parametric conversion in chi(2) microresonators

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Correction to: *Communications Physics* <https://doi.org/10.1038/s42005-022-00907-1>, published online 01 June 2022.

It has come to the authors' attention that equation [22] and [23] on page 6 of the published manuscript contained some notation mistakes.

The original equation [22] was written as

$$\begin{aligned}\lambda_{v,u} &= -\frac{1}{2}\kappa_a + \frac{1}{2}\kappa_a \sqrt{1 + 4\{|\Delta_{va}|^2 - |\Delta_{\mu a}|^2\}} \\ &= -\frac{1}{2}\kappa_a + \frac{1}{2}\sqrt{\kappa_a^2 + 4\{\delta_{va}^2 - \delta_{\mu a}^2\}}.\end{aligned}\quad (22)$$

And has now been changed to

$$\begin{aligned}\lambda_{v,u} &= -\frac{1}{2}\kappa_a + \kappa_a \sqrt{|\Delta_{va}|^2 - |\Delta_{\mu a}|^2} \\ &= -\frac{1}{2}\kappa_a + \sqrt{\delta_{va}^2 - \delta_{\mu a}^2}.\end{aligned}\quad (22)$$

The original equation [23] was written as

$$-\frac{1}{2}D_{2a}[\nu^2 + (\nu - 1)^2] - \varepsilon_0 \leq \delta_{0b} \leq -\frac{1}{2}D_{2a}[\nu^2 + (\nu + 1)^2] - \varepsilon_0.\quad (23)$$

and has now been corrected to

$$-\frac{1}{2}D_{2a}[\nu^2 + (\nu - 1)^2] - \varepsilon_- \leq \delta_{0b} \leq -\frac{1}{2}D_{2a}[\nu^2 + (\nu + 1)^2] - \varepsilon_+.\quad (23)$$

As a result of these changes the text has been modified as follow: (i) the second sentence of the paragraph below equation [22] has been changed from

“The instability threshold is reached when the curly brackets become zero, while the generation of the  $\pm\nu$  sideband pair is stable if the pump frequency is tuned to provide  $\delta_{0b}$  such that  $\delta_{va}^2 \leq \delta_{\mu a}^2$ .” to

“The instability threshold is reached when  $\lambda_{v,\mu}$  becomes zero, while the generation of the  $\pm\nu$  sideband pair is stable if the pump frequency is tuned to provide  $\delta_{0b}$  such that  $\delta_{va}^2 \leq \delta_{\mu a}^2 + \frac{1}{4}\kappa_a^2$ ”.

(ii) the following text has been added immediately following equation [23] where  $\varepsilon_{\pm} = \varepsilon_0 + \kappa_a^2/2D_{2a}(1 \pm 2\nu)$ .

In addition to the above, some omissions to the authorship of bibliographic references [13], [14], [15], were corrected. These references have been published with just the first author name appearing and were not reported in standard *Nature* referencing style as

13. Billat, A. et al. Large second harmonic generation enhancement in Si<sub>3</sub>N<sub>4</sub> waveguides by all-optically induced quasi-phase-matching. *Nat. Commun.* **8**, 1016 (2017).

14. Hickstein, D.D. et al. Self-organized nonlinear gratings for ultrafast nanophotonics. *Nat. Photonics* **13**, 494–499 (2019).

15. Lu, X. et al. Efficient photoinduced second-harmonic generation in silicon nitride photonics. *Nat. Photonics* **15**, 131–136 (2021).

Both the HTML and PDF version of the article have been corrected.

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