Comments and Corrections

Corrections to "Enhanced Dynamic Performance of Quantum Dot Semiconductor Lasers Operating on the Excited State"

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In [1, Fig. 5], and its description should be replaced. In [1, Fig. 5], the phase-amplitude coupling $A_{QD}^{ES}(j\omega)$ was not computed for the value of the gain compression factor given in [1, Table 1].

In this correction, Figure 5 presents the phase-amplitude coupling of the electric field $A_{QD}^{ES}(j\omega)$ and the modulation index ratio $2\beta(j\omega)/m(j\omega)$ as a function of modulation frequency. At low modulation frequencies less than 0.1 GHz, $A_{QD}^{ES}(j\omega)$ remains almost constant while $2\beta(j\omega)/m(j\omega)$ exhibits giant value due to the gain compression. Increasing the modulation frequency beyond a few gigahertz, both functions decrease down to a plateau ([1, [62]]), which gives the conventional α-factor as indicated by the horizontal line. The LEF obtained from [1 (19)] matches quite well with the one calculated from [1, (18)], i.e., $\alpha_{H,QD}^{ES} \approx \alpha_{H,QD}^{FM/AM}$. In contrast to QW lasers, further increase of the modulation frequency could raise the coupling ratio as already reported in Refs. [52] and [63] [1].

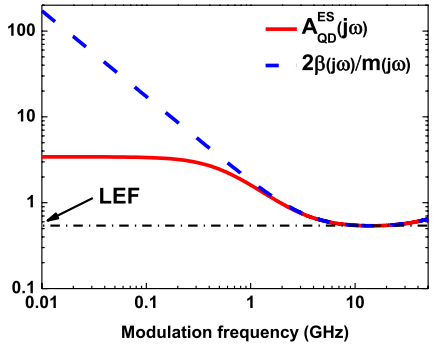

Fig. 5. Frequency dependence of the phase-amplitude coupling $A_{QD}^{ES}(j\omega)$ and the ratio $2\beta(j\omega)/m(j\omega)$ for the ES lasing at $I = 1.2 \times I_{th}$. Note that the gain compression effect is included in the plot for the value of the gain compression factor given in [1 Table 1]. The minimum level of the curve gives the LEF value (dotted line). The curve of the "phase-amplitude coupling" is corrected in this Erratum.

References

[1] C. Wang, B. Lingnau, K. Lüdge, J. Even, and F. Grillot, "Enhanced dynamic performance of quantum dot semiconductor lasers operating on the excited state," *IEEE J. Quantum Electron.*, vol. 50, no. 9, pp. 723–731, Sep. 2014.

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