Erratum: Waveguide QED: Power spectra and correlations of two photons scattered off multiple distant qubits and a mirror [Phys. Rev. A **91**, 053845 (2015)]

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We present two corrections to the original article. First, Fig. 14 should be replaced by the figure shown below. The result shown for $k_0a = 20\pi$ in Fig. 14(b) of the original paper is incorrect. As the incoming photons are in a plane-wave state at the qubit frequency, there is no coupling to the qubit. Thus the correlation function $g_2(t)$ must be $g_2(t) = 1$ for all times in this case. In addition to our original method, we have obtained results for this case using an exact time-dependent calculation based on the finite-difference time-domain method [1]. The main point of this figure was and remains the striking difference between the results of a Markovian and a non-Markovian calculation as exemplified by the $k_0a = 20.5\pi$ case.

Second, we correct a typographical error in the expression for $s_2(\infty)$ in Eq. (C4): A factor of 1/2 is missing. The correct result is

$$s_2(\infty) = \frac{1}{2} \frac{\Gamma \Omega^2 / 2}{\Gamma(\Gamma^2 / 4 + \delta \omega^2) + \Gamma \Omega^2 / 2}. \quad (\text{C4})$$

The other results reported in the paper remain intact.

FIG. 14. Photon correlations $g_2(t)$ of a single qubit coupled to a semi-infinite waveguide with resonant incoming photons ($k = \omega_0$) in the non-Markovian regime ($k_0a = 20\pi$ and 20.5π). For $k_0a = 20.5\pi$, the full non-Markovian result calculated from scattering theory (the blue points) or the finite-difference time-domain [(FDTD) [1], the black curve] differs substantially from the Markovian result (the red curve) [as in Fig. 14(a)]. For $k_0a = 20\pi$, we check that the FDTD approach (the magenta dashed line) yields the exact result $g_2(t) = 1$, which is obtained because the qubit decouples. [Parameters: The qubit frequency is $\omega_0 = 100\Gamma$, and the FDTD step size is $\Delta = \lambda_0/240$.]

[1] Y.-L. L. Fang, FDTD: solving 1+1D delay PDE, [arXiv:1707.05943](https://arxiv.org/abs/1707.05943).