Erratum: Precision measurements with photon-subtracted or photon-added Gaussian states [Phys. Rev. A **90**, 013821 (2014)]

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Our formula (8) in the original paper contains a sign error in the last term: the $+1$ in the bracket should read ∓ 1 . The results for the photon-subtracted states are not affected, but some formulas for photon-added states are changed and partly substantially simplified:

Equation (31) should read

$$W(x, p)[\hat{\rho}^+] = \frac{e^{-[(p-\bar{p})^2/\Gamma] - (x-\bar{x})^2\Gamma}}{\pi\Gamma^2[2(1+\bar{p}^2+\bar{x}^2)+\Gamma^{-1}+\Gamma]} [2p^2+2\bar{p}^2+(-1+4p^2)\Gamma+2(-1+p^2+x^2)\Gamma^2 \\ + (-1+4x^2-4x\bar{x})\Gamma^3+2(x-\bar{x})^2\Gamma^4-4p\bar{p}(1+\Gamma)].$$

It is still true that the large $\bar{x}$ expansion leads to the exact same expression as for photon subtraction in Eq. (17). Equation (32) should read

$$I[\hat{\rho}^{(+)}(\theta)] = \frac{2\Gamma[3+8\Gamma+2(5+4\bar{x}^2+2\bar{x}^4)\Gamma^2+8(1+\bar{x}^2)\Gamma^3+3\Gamma^4]\bar{x}^2}{[1+2(1+\bar{x}^2)\Gamma+\Gamma^2]^2}.$$

Two lines before Eq. (33), the expression $3+\bar{x}^2 > 0$ should read $1+\bar{x}^2 > 0$. The conclusion that no divergence is observed for $N \ll 1$ is unchanged. The corrected expressions for Eqs. (33) and (34) are

$$I[\hat{\rho}^{(+)}(\theta)] = \frac{\{3+\Gamma[4\bar{x}^4\Gamma+4\bar{x}^2(3+2\Gamma+3\Gamma^2)+3(4+6\Gamma+4\Gamma^2+\Gamma^3)]\}\Gamma^2}{2[\Gamma+2(1+\bar{x}^2)\Gamma^2+\Gamma^3]^2},$$

and

$$I[\hat{\rho}^{(+)}(\theta)] = \frac{3\Gamma^2}{2\Gamma^2},$$

where the latter is identical to the expression for the photon-subtracted state for all Γ . Finally, Eq. (A1) in the Appendix should be corrected to

$$I[\hat{\rho}^{(+)}(\theta)] = \frac{1}{2[\Gamma+2(1+\bar{p}^2+\bar{x}^2)\Gamma^2+\Gamma^3]^2} 4\Gamma\{3+\Gamma[8+8\bar{p}^2+10\Gamma+4(\bar{p}^2+\bar{x}^2)(2+\bar{p}^2+\bar{x}^2)\Gamma+8(1+\bar{x}^2)\Gamma^2+3\Gamma^3]\} \\ \times [(\bar{p}')^2+\Gamma^2(\bar{x}')^2]+32\Gamma^2\{\bar{p}[1+(1+\bar{p}^2+\bar{x}^2)\Gamma]\bar{p}'-\bar{x}\Gamma(1+\bar{p}^2+\bar{x}^2+\Gamma)\bar{x}'\}\Gamma' \\ +\{3+\Gamma[12\bar{p}^2+4(\bar{p}^2+\bar{x}^2)(2+\bar{p}^2+\bar{x}^2)\Gamma+12(1+\bar{p}^2+\bar{x}^2)\Gamma^2+3\Gamma^3+6(2+2\bar{x}^2+3\Gamma)]\}(\Gamma')^2.$$

We thank B. Gard for pointing out the mistake in Eq. (8).