Errata

Erratum: General form of the quantum-defect theory. II [Phys. Rev. A 26, 2441 (1982)]

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In the first line of Eq. (A2), $\exp\{\mp i\frac{1}{2}\pi[\nu \mp(\lambda_R+1)]\}$ should be replaced by $\exp\{i\frac{1}{2}\pi[\nu\mp(\lambda_R+1)]\}$.
In the second line of Eq. (A2), replace $e^{(1/2)\pi\alpha}$ by $e^{\pm(1/2)\pi\alpha}$.
The first factor on the right of Eq. (A7) should be $2^{-(\lambda_R+1)}$.
In the first line of Eq. (B4), replace tanh by coth.
We take this opportunity to record explicit formulas for $\mathcal{G}_\lambda$ and other QDT parameters in the presence of a dipole field, that is, when $\lambda=-\frac{1}{2}+i\alpha$. The procedure for this was given after Eq. (B10), but not worked out earlier. To form the QDT parameters $\mathcal{B}_{-\lambda-1}$ and $\delta_{-\lambda-1}$, one follows Appendix A except that in place of Eq. (3.9), one initially starts with the combination $[J(\lambda)-J(\lambda^*)]/(2i)$ of Jost functions. This finally results in certain changes in sign for the parameters relevant to $-\lambda-1$ from those for λ given in Tables I and II. For B and A in these tables, the sign of the terms involving a cosine is changed to minus. For the phase parameters η and β, an additional $\pi/2$ appears in the argument of the tangent function that stands at the end of the definitions of ϕ and $\tilde{\phi}$. Finally, the parameter $\mathcal{G}$ as given by Eq. (B8) is

$$\mathcal{G}=-\frac{B\sin[z_\alpha-z_{-\alpha}-2\alpha\ln 2k]}{(Z_\alpha^2-Z_{-\alpha}^2)/2Z_\alpha Z_{-\alpha}}\ ,\quad \epsilon>0$$

$$=-\frac{A\sin 2(y-\alpha\ln 2\kappa)}{\sinh 2\pi\alpha}\ ,\quad \epsilon<0\ .$$

We would like to note two publications that have appeared since. One is a detailed application of QDT to diatomic predissociation which has considerable overlap with our treatment [Frederick H. Mies, J. Chem. Phys. **80**, 2514 (1984)]. Another is a comprehensive review of QDT [M. J. Seaton, Rep. Prog. Phys. **46**, 167 (1983)].

Erratum: Nonlinear Langevin equations with colored noise and their (harmonic) oscillator representations [Phys. Rev. A 28, 474 (1983)]

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We had to solve Eq. (14) so as to obtain $\langle\tilde{\alpha}|U(t)|\tilde{\alpha}\rangle$ at $\alpha^*=0$. Apart from the multiplicative factor $\exp(-\frac{1}{2}|\alpha|^2)$, $|\tilde{\alpha}\rangle=\exp(\alpha a^+)|0\rangle$ is a coherent state, and $a|\tilde{\alpha}\rangle=\alpha|\tilde{\alpha}\rangle$. This type of state is ideal for solving the partial differential equation (14), but its normalization requires some care: $\langle\tilde{\alpha}|\tilde{\alpha}=\exp(\alpha^*\alpha)$.
The final equations (19) and (20a)–(20c) are correct, but (18) is not because in general $\langle\tilde{\alpha}|\tilde{\alpha}\rangle\neq 1$. Our new ansatz is

$$\langle\tilde{\alpha}|U(t)|\tilde{\alpha}\rangle=\exp[A(t)+B(t)\alpha^*+D(t)\alpha+C(t)\alpha^{*2}+E(t)\alpha^*\alpha+F(t)\alpha^2]\ , \tag{18a}$$

with $E(0)=1$ and $A(0)=\cdots=F(0)=0$. Substituting (18a) into (14) we find, as before,

$$\dot{A}=-g-f_1(B^2+2C)-f_2B\ , \tag{20a}$$

$$\dot{B}=-B(\omega+4f_1C)-f_2(1+2C)\ , \tag{20b}$$

$$\dot{C}=-2\omega C-4f_1C^2-f_1\ , \tag{20c}$$

and, furthermore,

$$\dot{D}=-E(2Bf_1+f_2)\ , \tag{20d}$$

$$\dot{E}=-E(\omega+4f_1C)\ , \tag{20e}$$

$$\dot{F}=-f_1E^2\ . \tag{20f}$$

