ERRATA


Reference 9 should include the following: K. Nagai, to be published.


While our basic formalism is correct, there is an error of application which invalidates one of our most striking conclusions concerning the invalidity of a polarization picture. Our basic estimates involve the effective potential

$$V_{\text{eff}}(\mathbf{R}) = \int U(\mathbf{R}, \rho_1, \rho_2) \eta_1(\rho_1) \eta_2(\rho_2) d\rho_1 d\rho_2$$

to be distinguished from

$$\tilde{V}_{\text{eff}}(\mathbf{R}) = \int f(\mathbf{R}, \rho_1, \rho_2) \eta_1(\rho_1) \eta_2(\rho_2) d\rho_1 d\rho_2.$$ 

When one has Coulomb interactions and two neutral clusters $V_{\text{eff}}(\mathbf{R}) \sim |\mathbf{R}|^{-2}$ at infinity, and so our proof that $\sigma_{\text{tot}} < \infty$ for atom-atom scattering is correct. However, if one cluster is charged, but the other neutral, then $V_{\text{eff}}(\mathbf{R}) \sim |\mathbf{R}|^{-2}$ at infinity [although $\tilde{V}_{\text{eff}}(\mathbf{R})$ will be $O(1)|\mathbf{R}|^{-2}$ if the neutral cluster has no static dipole moment], and so our statement that we have shown $\sigma_{\text{tot}} < \infty$ for atom-ion scattering is incorrect. Similarly, our statement that $V_{\text{eff}}$ falls exponentially when the neutral cluster is an s state is wrong (rather $\tilde{V}_{\text{eff}}$ falls exponentially), so that our conclusions about the invalidity of a polarization picture are questionable.


We wish to clarify certain statements that might be interpreted as criticisms of Ref. 3. First, it is true, as pointed out in Ref. 3, that the formula of S ternan and Weinberg is invalid for $\epsilon/(1-\epsilon) > \sin \delta$ if their phrase "oppositely directed cones" is taken to mean "exactly collinear cones." The necessary correction term in this region is given by setting $\Delta = \delta$ in our Eq. (3), and has been derived independently by P. M. Stevenson [Ph. D. thesis, Imperial College, London, 1979 (unpublished)]. Second, in connection with footnote 6, the $E^{-1+i\epsilon}$ behavior quoted in Ref. 3 is simply a correction of a numerical slip in Ref. 1. The improved formula derived in Ref. 3 gives $E^{-\alpha_{\text{at}}}$, in quite good agreement with the exact first-order result.

We are grateful to Dr. P. M. Stevenson for correspondence on these points.


The last equation of Eqs. (8) should read

$$\ddot{q}_i + \nabla_i P + \nabla\cdot(\sigma_{1s} \dot{e} + \sigma_{2s} \dot{e} + \sigma_{1k} \dot{e}) = 0.$$ 

Also, one line below, replace $q_i$ with $g_i$ in the expression for $\sigma_{1k} \dot{e}$.

The second term on the right-hand side of the last equation of Eqs. (10) should read

$$\sigma_{1k} \dot{e} = \sigma_{1k} \dot{e} + \nabla_i T$$


On page 331, seven lines after Eq. (2) "the single $\Delta H_{\text{ex}}(x)$" should read "the single $\Delta \phi$-independent function $\Delta H_{\text{ex}}(x)$."