ERRATA


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The energy argument of the wave function in Eq. (15) of our paper should be \( E \) rather than \( E' \). That the off-shell wave function is intended is easily seen from Eq. (12). Also, there is a misstatement in the line immediately following Eq. (22); the contour is to be closed clockwise.

Finally, we elaborate on how the integrals in Eqs. (15) and (22) are carried out by contour integration. Consider, e.g., the integral

\[
\int_{0}^{\infty} dk' \frac{e^{ik'x}A(k')}{E - (\hbar k')^2/2m - i\epsilon}, \quad E = \frac{(\hbar k)^2}{2m},
\]

in Eq. (22). Assuming that \( A(k') \) is analytic in a disk of finite radius \( R \) surrounding the pole at \( k' = k - mi\epsilon/\hbar^2 \), we close the contour by adding and subtracting the integral on the finite semicircle in the lower half plane, and thereby write the integral as a clockwise closed contour integral around the pole in the lower \( k' \)-plane (equal to \(-2\pi i \) times the residue at the pole), plus the integral

\[
\int_{C} dk' \frac{e^{ik'x}A(k')}{E - (\hbar k')^2/2m - i\epsilon}.
\]

Here, we have extended the \( k' \) integration to \(-\infty \) by using the fact that \( A(k < 0) = 0 \) (see Fig. 1 for the path "C"). To show that this integral is effectively zero, we first rewrite it in the form

\[
\int_{C} dk' \frac{e^{ik'x}A(k')}{E - (\hbar k')^2/2m - i\epsilon} + \int_{C} dk' \frac{e^{ik'x}[A(k') - A'(k')]}{E - (\hbar k')^2/2m - i\epsilon},
\]

where \( A'(k') \) is the Fourier transform of a packet \( \chi'(x) \) which is equal to \( \chi(x) \) in region II of Fig. 1 of our Letter, but is zero in regions I and III. It is easy to show that \( e^{ik'x}A'(k') \) is analytic and bounded in the lower \( k' \)-half plane for \( x \) in region III, and therefore the first integral vanishes by Cauchy's theorem. Furthermore, \( |A - A'| \) is uniformly bounded along \( C \) by a bound that can be made arbitrarily small by appropriate choice of the position, width, and momentum of the initial packet. In particular, under the assumptions of our paper that \( \chi(x) \) represents a localized particle moving toward the target, this bound can be made as small as desired, as is suggested by Fig. 1 in our Letter. Thus, the second integral in (3) above can be made arbitrarily small by appropriate choice of the initial packet parameters, and the value of the integral in Eq. (22) of our Letter is therefore given by the contribution from the residue at the pole \( k' = k - mi\epsilon/k^2 \).

The calculations reported in our paper were carried out using a packet of this sort, and were analyzed in region III using Eq. (24) to yield quantitatively accurate results. The integral in Eq. (15) is performed similarly by making use of the fact that \( A'(k')e^{ik'x} \) is analytic and bounded in the upper half of the \( k' \)-plane for \( x \) in region I.

The authors are indebted to Professor Roger Newton for stressing that the method of doing the integrals required further elaboration.

\[\text{FIG. 1. The path "C" for the integral in (2). It starts at } -\infty \text{ and extends to } +\infty \text{ along the real } k' \text{ axis. The radius } R \text{ of the semicircle can be made as small as desired provided it still goes below the pole, as indicated.}\]