

Erratum: Tight focusing of an atomic beam by the near field of diffracted laser light [JETP Lett. 59, 235–239 (1994)]

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There are several misprints in this article, for which the authors are responsible. A term was omitted on the second line of Eq. (2). The correct expression is

$$b(\bar{z}) = 2 \left[3 \left[1 - \bar{z} \arctan(1/\bar{z}) \right] + \frac{1}{1 + \bar{z}^2} - \frac{3\pi}{ka} \sin ka\bar{z} \right]^2, \quad \bar{z} < 0.$$

A factor of 4 was omitted from the first term on the first line of (3). The correct expression is

$$d(\bar{z}) = \frac{4(9\bar{z}^4 + 14\bar{z}^2 + 4)}{(\bar{z}^2 + 1)^4} - \frac{12\bar{z}(3\bar{z}^2 + 1)\arctan(1/\bar{z})}{(\bar{z}^2 + 1)^3}, \quad \bar{z} > 0.$$

There are incorrect signs on the second line in (3). The correct expression is

$$d(\bar{z}) = d(-\bar{z}) - 4 \left(\frac{3\pi}{ka} \right) \sin ka\bar{z} \left(\frac{1 + 3\bar{z}^2}{(\bar{z}^2 + 1)^3} \right), \quad \bar{z} < 0.$$

In the unnumbered display equation above (6) on p. 237, a factor of κ was omitted. The correct expression is

$$\frac{\eta}{2} \left(\frac{ka}{3\pi} \right)^2 \frac{G\kappa}{1 + k^2} \ll 1, \quad ka \ll 1.$$

Equation (6) should read as follows:

$$\frac{z_c}{a} = - \frac{1}{35\pi\epsilon} = - \frac{4}{35\pi} \left(\frac{3\pi}{ka} \right)^2 \frac{1 + k^2}{G\kappa} \frac{T_0}{\hbar\Gamma}.$$

These misprints do not affect the results of the paper.