Erratum: Self-calibrating measurement of polarization-dependent frequency shifts from Rb-³He collisions [Phys. Rev. A **49**, 2766 (1994)]

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In the original paper, the quantities $B_{\parallel}$ and $B_{\perp}$ are defined as the long-range (through-space) contribution to the magnetic field in an infinite cylinder containing uniform magnetization M oriented parallel and perpendicular to the axis of the cylinder. The long-range contribution in each case results from subtracting the classical contact contribution $(8\pi/3)M$ from the the full classical field,

$$B_{\parallel} = 4\pi M - \frac{8\pi}{3}M = \frac{4\pi}{3}M, \quad (1)$$

and

$$B_{\perp} = 2\pi M - \frac{8\pi}{3}M = -\frac{2\pi}{3}M. \quad (2)$$

The discussion under Eq. (3) of our paper contains the sentence, “For an infinite cylinder we find, $B_{\parallel} = 4\pi M$ and $B_{\perp} = -2\pi M$,” which is incorrect.

Accordingly, Eqs. (4) and (5) in the original paper also need to be corrected; they should read

$$\Delta\nu_{\parallel} = \frac{\gamma_{\text{Rb}}}{2\pi} \left[\frac{8\pi}{3}(\kappa_0 - 1)M + 4\pi M \right] = \frac{\gamma_{\text{Rb}}}{2\pi} \left(\frac{8\pi}{3}\kappa_0 M + \frac{4\pi}{3}M \right), \quad (3)$$

and

$$\Delta\nu_{\perp} = \frac{\gamma_{\text{Rb}}}{2\pi} \left[\frac{8\pi}{3}(\kappa_0 - 1)M + 2\pi M \right] = \frac{\gamma_{\text{Rb}}}{2\pi} \left(\frac{8\pi}{3}\kappa_0 M - \frac{2\pi}{3}M \right), \quad (4)$$

where we recall that, as defined, κ_0 is the *amplification* (enhancement) of the ³He magnetization contribution to the magnetic field seen by Rb, relative to the case of a uniformly magnetized continuous medium in classical magnetostatics.

Remarkably, Eq. (6) in the original paper is correct, although it can be properly derived only from the above two corrected equations. This means that these errors were not propagated beyond this point, and all of the subsequent analysis stands as originally formulated and expressed.

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