Erratum: Globally Polarized Quark-Gluon Plasma in Noncentral $A + A$ Collisions [Phys. Rev. Lett. 94, 102301 (2005)]

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After the publication of the Letter, we found a factor of 2 missing from Eqs. (8) and (9). Therefore the global quark polarization in Eq. (8) should be

$$P_q = -\pi\mu p/2E(E + m_q). \tag{1}$$

In the nonrelativistic limit for massive quarks, $m_q \ll p, \mu$, the polarization becomes [Eq. (9)]

$$P_q \approx -\pi\mu p/4m_q^2. \tag{2}$$

We also made an error in the numerical estimate of the average longitudinal momentum difference within a typical interaction range $1/\mu$ in noncentral Au + Au collisions at RHIC and consequently the quark polarization following Eq. (8). The discussion following Eq. (8) should be replaced as follows.

In the limit $m_q = 0$ and $p \gg \mu$, one expects $P_q = -\pi\mu/2\Delta p_z$. Given $dp_0/dx = 0.34$ GeV/fm for semiperipheral ($b = R_A$) collisions at RHIC and an average range of interaction $\Delta x^{-1} \sim \mu \sim 0.5$ GeV, $\Delta p_z \sim 0.1$ GeV, which is much smaller than the average transverse momentum transfer μ. Therefore, for a reliable estimate of the quark polarization at RHIC, one needs to go beyond the approximation of small angle scattering.

