

Erratum: Noncyclic Berry phase and scalar Aharonov-Bohm phase for the spin-redirection evolution in an atom interferometer [Phys. Rev. A **86**, 022105 (2012)]

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We would like to add the condition which Eq. (4) holds and Eq. (4') for the other condition, and using them, Fig. 7 is revised as follows:

Equation (4) holds for $0 \leq \theta \leq \pi/2$ and for $\pi/2 \leq \theta \leq \pi$

$$\gamma(\theta, \phi) = -m \begin{cases} 4\pi - 2 \sin^{-1} \left(\frac{\sin(\phi/2)}{\sqrt{1 + \tan^2 \theta \cos^2(\phi/2)}} \right) - \phi \cos \theta, & 0 \leq \phi \leq \pi, \\ 2[\pi + \sin^{-1} \left(\frac{\sin(\phi/2)}{\sqrt{1 + \tan^2 \theta \cos^2(\phi/2)}} \right)] - \phi \cos \theta, & \pi \leq \phi \leq 2\pi. \end{cases} \quad (4')$$

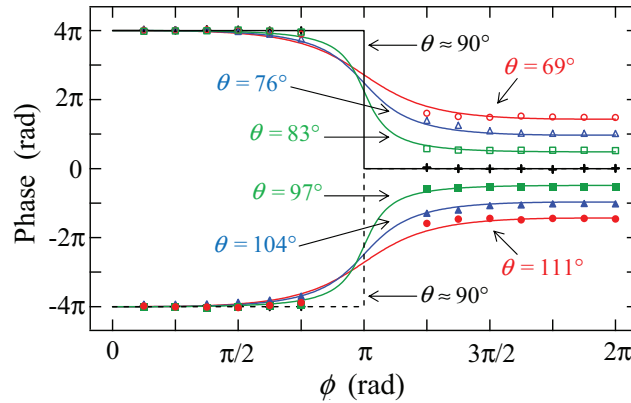


FIG. 7. (Color online) Observed phase for various θ vs rotation angle. For $\phi < \pi$, the experimental values are shifted in 4π for $\theta < \pi/2$ and in -4π for $\theta > \pi/2$. The solid lines are theoretical curves calculated for noncyclic Berry's phase defined by a geodesic gauge.