

Maeda *et al.* Reply: In their classical simulations of our experiment, Yoshida *et al.* [1] find that a wave packet is formed with a broad distribution of ℓ states, not a circular wave packet. We did not prove that the atoms are in a circular state, rather that the atoms, collectively, are following a circular orbit. The atoms are almost certainly not in the superposition state composed of only circular states, but a mixture of states. Whether or not this mixture is the one suggested by Yoshida *et al.* is not clear.

Yoshida *et al.* imply that our method is, in principle, doomed to failure since the optically accessible np states are only weakly coupled to the circular states. While the latter statement is true, it is possible to make circular states by adiabatically changing the symmetry of the problem. One approach, suggested by Delande and Gay [2] and realized by Hare, Gross, and Goy [3], is to excite Rydberg atoms in an electric field which is decreased while a perpendicular magnetic field is increased. The similarity between a rotating frame and having a magnetic field suggests a different approach, proposed by Molander, Stroud, and Yeazell [4], and realized by Cheng, Lee, and Gallagher [5]. Atoms are excited in a circularly polarized electric field which is then reduced to zero. In both of these approaches, the result is a circular state, having no low ℓ character. The approach we have used is conceptually similar to these. Specifically, we have created a wave packet in a linearly polarized field in which the electron's motion is phase locked to the oscillating field. In physical terms, the electron is trapped in a potential well which oscillates back and forth. The polarization of the field is then slowly changed to circular, and the oscillation of the potential gradually changes from linear to circular motion, with the electron remaining in the well. This procedure is one suggested by Sacha and Zakrzewski [6], on the basis of their Floquet calculations. However, they point out that the

wave packet in the linearly polarized field splits into two wave packets, circulating in opposite directions, a complication we did not expect.

In sum, while the composition of the wave packet we have produced in the circularly polarized field is not well defined, it should be possible to create a purely circular polarized Bohr wave packet following our general approach, although to do so will require finer control of the experimental parameters.

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