

# Loss of spatial coherence in atomic deflection from an off-resonant quantized standing-wave field

Le Kien F., Chizhov A.V.

Abteilung für Quantenphysik, Universität Ulm, D-89069 Ulm, Germany; Department of Physics,  
University of Hanoi, Hanoi, Viet Nam; Bogolubov Lab. of Theor. Physics, Joint Institute for Nuclear  
Research, 141980 Dubna, Russian Federation

**Abstract:** We show that the transverse spatial coherence of the atomic density matrix is destroyed to some extent by the deflection of the atom from an off-resonant quantized standing-wave field. The collapse and revival of the atomic spatial coherence are demonstrated.

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Correspondence Address: Le Kien, F.; Abteilung für Quantenphysik, Universität Ulm, D-89069 Ulm, Germany

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Authors with affiliations:

1. Le Kien, F., Abteilung für Quantenphysik, Universität Ulm, D-89069 Ulm, Germany, Department of Physics, University of Hanoi, Hanoi, Viet Nam
2. Chizhov, A.V., Abteilung für Quantenphysik, Universität Ulm, D-89069 Ulm, Germany, Bogolubov Lab. of Theor. Physics, Joint Institute for Nuclear Research, 141980 Dubna, Russian Federation

References:

1. Kasantsev, A.P., Surdutovich, G.I., Yakovlev, V.P., (1990) Mechanical Action of Light on Atoms, , World Scientific, Singapore
2. Adams, C.S., Sigel, M., Mlynek, J., (1994) Phys. Rep., 240, p. 143
3. Meystre, P., Schumacher, E., Stenholm, S., (1989) Opt. Commun., 73, p. 443
4. Akulin, V.M., Kien, F.L., Schleich, W.P., (1991) Phys. Rev. A, 44, pp. R1462
5. Holland, M.J., Walls, D.F., Zoller, P., (1991) Phys. Rev. Lett., 67, p. 1716
6. Herkommer, A.M., Akulin, V.M., Schleich, W.P., (1992) Phys. Rev. Lett., 69, p. 3298
7. Freyberger, M., Herkommer, A.M., (1994) Phys. Rev. Lett., 72, p. 1952

8. Averbukh, I.Sh., Akulin, V.M., Schleich, W.P., (1994) Phys. Rev. Lett., 72, p. 437
9. Kunze, S., Rempe, G., Wilkens, M., (1994) Europhys. Lett., 27, p. 115
10. Tan, S.M., Walls, D.F., (1993) Phys. Rev. A, 47, p. 4663
11. Pfau, T., Sp?lter, S., Kurtsiefer, Ch., Ekstrom, C.R., Mlynek, J., (1994) Phys. Rev. Lett., 73, p. 1223
12. Steuernagel, O., Paul, H., (1995) Phys. Rev. A, 52, pp. R905
13. Graham, R., Schlautmann, M., Zoller, P., (1992) Phys. Rev. A, 45, pp. R19
14. Brune, M., Haroche, S., Lefevre, V., Raimond, J.M., Zagury, N., (1990) Phys. Rev. Lett., 65, p. 976
15. Brune, M., Haroche, S., Raimond, J.M., Davidovich, L., Zagury, N., (1992) Phys. Rev. A, 45, p. 5193
16. Yoo, H.-I., Eberly, J.H., (1985) Phys. Rep., 118, p. 239
17. Rempe, G., Walther, H., Klein, N., (1987) Phys. Rev. Lett., 58, p. 353

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