Selected Abstracts from Other Physical Review Journals

Abstracts of papers that are published in other Physical Review journals and may be of interest to Physical Review E readers are printed below.

Focusing of atoms with spatially localized light pulses. Lars Egil Helseth, *Department of Physics, University of Oslo, P.O. Box 1048 Blindern, N-0316 Oslo, Norway.* (Received 14 April 2002; revised manuscript 29 August 2002; published 12 November 2002)

We theoretically study the focusing of atoms using strongly localized light pulses. It is shown that when inhomogenously polarized light is focused at high angular apertures, one may obtain useful potentials for atom focusing. Here we analyze the case of pulsed light potentials for red- and blue-detuned focusings of atoms. In particular, we show that the atomic beam aperture must be stopped considerably down in order to reduce the sidelobes of the atomic density, which is similar to the situation often encountered in conventional optics. It is suggested that an annular aperture in front of the atomic beam could be useful for increasing the resolution, at the cost of a lower atomic density. [Phys. Rev. A **66**, 053609 (2002)]