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Coherent tunneling of atoms and dimers in half spaces[1] MICHAEL GRUPP, REINHOLD WALSER, WOLFGANG SCHLEICH, Institute of Quantum Physics, Ulm University, Germany — Feshbach scattering of fermions in an one-dimensional optical lattice is an intensively investigated subject [1,2]. Scattering theory in free space differs significantly from scattering in a lattice. By breaking the continuous translation symmetry the center-of-mass momentum of the two particles become a new control parameter of Feshbach scattering. We have reported numerical results of this effect in [3]. In the present contribution we study a simple analytic model of this effect by considering the coherent Feshbach scattering of atoms and dimers in half spaces.
[1] I. Bloch, J. Dalibard, W. Zwerger, Rev. Mod. Phys. 80, 885 (2008) [2] N. Nygaard, R. Piil, K. Mølmer, Phys. Rev. A 78, 023617 (2008)
[3] M. Grupp, R. Walser, W. Schleich, A. Muramatsu and M. Weitz, J. Phys. B: At. Mol. Opt. Phys. 40 (2007) 2703-2718

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