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.

Time-resolved nonlinear laser-induced fluorescence technique for a combined lifetime and branching-fraction measurement R. Schnabel and M. Kock *Institut für Atom- und Molekülphysik, Abteilung Plasmaphysik, Universität Hannover, Callinstrasse 38, D-30167 Hannover, Germany* (Received 29 February 2000)

The single-shot time-resolved laser-induced fluorescence (LIF) technique is well established for measuring radiative lifetimes of atomic states. On top of that, we show that the branching fraction of the pumped transition can be determined and hence also the absolute transition probability, provided that the LIF signal has been sufficiently saturated by the laser pulse. This additional information is solely deduced from the temporal nonlinear behavior of the LIF signal during laser pumping. The alternative procedure is based on the fact that atoms that decay spontaneously into the initial state can be re-excited during the same laser pulse, whereas atoms that decay into third levels cannot. First measurements of this kind have been performed on singly ionized iron. Lifetimes, branching fractions, and resulting transition probabilities are presented and compared with literature data. [Phys. Rev. A **XX**, 0000 (200X)]

Bloch waves and Wannier functions in periodic superstructure Bragg gratings I. Talanina and C. Martijn de Sterke *School of Physics, University of Sydney, New South Wales 2006, Australia* (Received 24 September 1999; published 5 September 2000)

We study Bloch waves and Wannier functions in periodic superstructure Bragg gratings using coupled-mode theory. We formulate the procedure that leads to Wannier functions that have a high degree of symmetry and appear to fall off exponentially, away from the photonic well. These Wannier functions can be considered to be the equivalent of those found by Kohn for the one-dimensional Schrödinger equation with a periodic potential. [Phys. Rev. A **62**, 043802 (2000)]

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