

Abstract Submitted
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Photodetachment Wave Packet Motion in Crossed Fields¹ LIANG-YOU PENG, QIAOLING WANG², ANTHONY F. STARACE, University of Nebraska-Lincoln — We present a detailed quantum mechanical treatment of the photodetachment of H^- by short laser pulses in crossed static electric and magnetic fields. We derive the effective detachment cross section appropriate for short laser pulses, which reduces in the limit of a long pulse to known results for the case of a monochromatic field. The time-evolution in coordinate space of the detached electron wave packet allows one to observe clearly the return of a portion of the wave packet to the origin at times which correspond to the orbital periods of the classical closed orbits [1]. In addition, Fourier transform of the oscillatory part of the cross section reveals its classical connections. We will present movies of the wave packet motion for single and double pulse cases. [1] A.D. Peters and J.B. Delos, *Phys. Rev. A* **47**, 3020 (1993).

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