Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Laser wavelength effect on charge transfer and excitation processes in laser-assisted collisions of Li^++H[1] F. JAVIER DOMíNGUEZ-GUTIÉRREZ[2], R. CABRERA-TRUJILLO, Instituto de Ciencias Físicas, Universidad Nacional Autónoma de México, Ap. Postal 43-8, Cuernavaca, Morelos, 62251, México — Total, $n = 2$, and 3 charge transfer and $n = 2$ target excitation probabilities for collision of Li^+ with ground state atomic hydrogen are calculated numerically, in the impact energy collision range 0.25-5 keV. The total wave function at the end of the dynamics of the collision is obtained by solving the time-dependent Schrödinger equation by means the finite-difference method. We use a pseudo-potential method to model the electronic structure of the Li^+ ion. The $n = 2$, and 3 charge transfer and $n = 2$ target excitation probabilities are obtained by projecting the stationary states of Lithium and Hydrogen neutral atoms to the total wave function of the collision, respectively; the stationary states of Li and H are obtained numerically. To assess the validity of our method, our numerical results have been compared with those obtained experimentally and by other theoretical methods found in the literature. We study the laser-assited collision by using a short (3 fs at FWHM) and intense (3.15 $\times^{12}$ W/cm^2) Gaussian laser pulse. We consider a wavelength range between 400 - 1000 nm in steps of 100 nm. Finally, we analyze the laser assisted collision by a qualitatively way with a two level approach.

[1]We acknowledge support from grant PAPIIT IN 110-714 and CONACyT (Ph.D. scholarship).
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Date submitted: 28 Jan 2014 Electronic form version 1.4