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Photon-electron-ion momentum transfer in high intensityIR laser pulse ionization ANDRE D BANDRAUK, SZCZEFAN CHELKOWSKI, Universite de Sherbrooke, PAUL CORKUM, NRC-Ottawa — Photon momentum sharing between electrons and parent ions in high intensityIR multiphoton ionization requires going beyond the traditional perturbative dipole approximation[1].Using numerical solutions of the 2-D TDSE(Time dependent Schroedinger equation) for one electron atom models[2],we show that the radiation pressure on photoelectrons is sensitive to the ionization mechanism,either direct or by recollision.A complex electron-ion response is obtained due to the interplay between the Lorentz force and Coulomb attraction of the ion.The influence of the photon momentum sharing is shown to be discernible in IR high intensity atomic and/or molecular holographic patterns thus suggesting a new research subject in IR strong field physics. [1]S Chelkowski,AD Bandrauk,PB Corkum, Phys Rev Lett 113,263005(2014) [2]S Chelkowski,AD Bandrauk,PB Corkum,Phys Rev A 92,R051401(2015)

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