

Ionization physics at extreme intensity

Daniel Gordon

Naval Research Laboratory, Washington, DC

Tunnel ionized electrons exhibit remarkable momentum distributions in the extreme intensity regime. The highest photo-electron energy scales super-ponderomotively with energy in the range $10 \lesssim \omega \lesssim 100$, making the process interesting from a free space acceleration point of view. In some configurations sub-cycle ionization dynamics can be gleaned from the momentum distribution. Target design and pre-pulse control appear to be important considerations for potential experimental demonstrations.