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Study on the Effect of Laser on the Energy Deposition of ion in two-component Plasma Targets[1] GUIQIU WANG, HE YI, YUJIAO LI, YAOCHUAN WANG, DAJUN LIU, Dalian Maritime University — In this paper, we study the effect of laser field on the Coulomb explosion and stopping power of molecular ions in two-component plasma targets. In particular, the effect of plasma excitation on the behavior of molecular ions in intense laser field is discussed. In the absence of laser field, plasma is usually regarded as only electrons participating in the response. However, with the increase of laser field intensity, the behavior of ions becomes more and more important. Therefore, the behavior of ions shouldn't be ignored in the case of strong laser field. Their excitation in the case of strong laser field is considered, especially in the case of low-speed incident ion beam. The influence of ions in the body is very important. In this paper, we study the effects of laser field parameters and plasma parameters on the Coulomb explosion and blocking ability of molecular ions by using molecular dynamics simulation method, taking into account the dielectric function of two-component plasma. In the framework of linearized Volasov-Poisson theory, we numerically solve the equation of motion of ions. The results obtained have certain guiding significance and reference value for related experiments.

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