QUANTUM CONTROL OF MOLECULAR ALIGNMENT AND ORIENTATION BY TWO-COLOR TRAPEZOIDAL LASER PULSES

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The alignment and orientation of the linear molecule by the two-color trapezoidal laser pulses were theoretically investigated. The use of the trapezoidal shape of a laser pulse enhances the maximum alignment degree for the same intensity and duration comparing to the Gaussian laser pulse. Influence of pulse duration on the maximum degrees of molecule alignment and orientation was investigated. The influence of temperature effects is shown. It is shown that the use of additional preimpulse increases the maximum degree of orientation, and the application of two-color rather than monochromatic preimpulse leads to a higher maximum degree of orientation. The influence of change of relative phase between fundamental and second harmonics on orientation of molecules in the case of one and two impulses was also studied.