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标题: Field-free molecular orientation with chirped laser pulse
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摘要: We demonstrate theoretically that an efficient field-free molecular orientation driven by the positively chirped laser pulse whose frequency is in the terahertz regime can be achieved, taking the LiH molecule for example. Exact numerical calculations are performed by solving the time-dependent Schrodinger equation including the vibrational and rotational degrees of freedom. The maximal orientation degree of the LiH molecule vertical bar < cos theta >vertical bar(max) = 0.85 under the action of chirped laser pulse with the peak intensity of 4.78 x 10(8) W/cm(2) at T = 0 K, which is larger than vertical bar < cos theta >vertical bar(max)=0.75 driven by the half-cycle laser pulse with the same intensity. The molecular orientation degree decreases with the increase of temperature.
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