

# Managing the effectiveness of the impact of an extremely compressed pulse on the medium by means of initial polarization

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Filamentation of a femtosecond laser pulse under anomalous group velocity dispersion leads to the formation of a wave packet which is extremely compressed both in space and in time [1]. For the first time, the formation of a mid-infrared single-cycle pulse during propagation of a femtosecond laser pulse with an arbitrary initial polarization ellipticity of the light field has been experimentally and numerically investigated. It is established that the polarization ellipticity determines the effect of the carrier-envelope phase on the nonlinear-optical interaction of the ultrashort pulse with the medium. When changing from linear to circular polarization the modulation depth of the pulse peak intensity decreases as well as modulation depth of modifications induced in dielectric which demonstrates the change in the effectiveness of single-cycle pulse impact on the dielectric.

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