

Stimulated Raman Scattering Indicatrix Asymmetry at Stop-point of Self-focusing region

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Abstract

The report provides experimental and theoretical results of stimulated Raman scattering indicatrix asymmetry study for Stokes component. Theoretical results demonstrate that asymmetry is caused by influence of Stokes/anti-Stokes parametric processes. Stokes/anti-Stokes parametric process provides additional photons to the forward Stokes component. This excess of photons compared to a backward Stokes component increases due to combinational mechanism of stimulated scattering during further propagation of waves along the medium. Thus, under competition of forward and backward Stokes components generation, the process of forward stimulated Raman scattering takes significant advantage. Satisfactory matching between theoretical calculations and experimental results for benzene under excitation by ruby laser pulses with duration 25 ns is obtained.

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