

MEDIUM WAVE BLEACHING  
UNDER STIMULATED RAMAN SCATTERING  
ON DIPOLE-ACTIVE VIBRATIONAL MODES

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S u m m a r y

A consistent quasistationary theory of stimulated Raman scattering (SRS) on dipole-active vibrational modes in liquids is proposed taking into account their collective properties and wave bleaching (WB) phenomenon. It is shown both analytically and numerically that constant wave amplitudes and phases are settled along a Raman-active medium. Analytic solutions are obtained for the WB regime. It is established that the vibrational dipole momentum  $D$  increase leads to a decrease in the SRS efficiency, and there is the optimal value  $D_{\text{opt}}$  for generation of a polariton wave  $\omega_p$ . Optimization of the generation conditions is carried out, and it is shown that its quantum efficiency can reach 45%.