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Title: Study of thermal lensing in non-resonant samples

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**Abstract:** When the intense laser beam is incident on the sample, then along with optical nonlinearity, thermal non-linearity also appears in the sample and affects the propagation of light significantly. Previous work done on the measurement of the thermal lensing were focused on the lensing that is caused by the resonant processes where sample absorbs light and subsequent non-radiative relaxation leads to heating. But the heating which is caused in non-resonant sample mostly because of Raman scattering is still not much explored. To understand thermal nonlinearity in non-resonant samples we used collinear non-resonant pump/non resonant probe Z-Scan technique. In single beam experiment at low power, showed us that the thermal lensing gets build up with time and after prolonged exposure (more than an hour), the Z-Scan traces become reproducible. Performing pump-probe experiment we observed that the thermal lens created by the pump relaxes on few tens of picoseconds time- scale.

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