

ABSTRACT

We have observed thermal lensing in non-resonant condition. We used ethanol to investigate this phenomenon. We performed single beam Z-Scan and pump-probe Z-Scan experiments. In single beam Z-Scan, the trace was modified after long exposure of the laser beam which indicated presence of heating. There are other phenomenon as well because of which we observe such features. Since, they are not present in the conditions we are using, it can be clearly said that the sample is heated because of which thermal lens has been created. Further, Pump-probe Z-Scan was performed to observe only heating created lens. But because of the low signal to noise ratio due to the low average power of the pump beam, we cannot rely on the data recorded. To see how the thermal lens is evolving, a temporal variation experiment was performed and the data was fitted using a phenomenological model. The coefficient and the buildup time was found to be $-2.12 \times 10^{-18} \text{m}^2/W$ and 37.8 min respectively.