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NON-LINEAR OPTICAL PROPERTIES OF NANO PARTICLE C60 FULLERENE USING LASERS

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The third order non-linear optical properties of Buckminster fullerene (C_{60}) molecule has been studied using a Nd:YAG laser, in the visible and in the infrared region .The solvent using toluene was specifically used because of low threshold intensity for an optical limiter application. Closed aperture Z-scan technique was adopted to characterize the material due to its simplicity and high sensitivity in measuring the third-order optical nonlinearity. This allows computing the contributions of nonlinear absorption and nonlinear refraction towards nonlinearity. Saturable absorption (SA) for C_{60} nano particles is also established. RSA is not established. FT-IR studies is also carried out to characterize the sample and to correlate the NLO studies.

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