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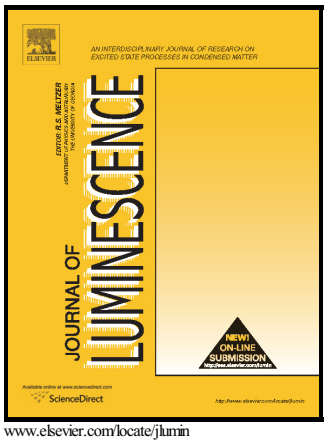

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Nonlinear Optical response of tetra and mono substituted zinc phthalocyanine complexes.

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Abstract:

The nonlinear absorption properties of 6 mono-substituted and 3 symmetric zinc phthalocyanine complexes have been studied in dimethylsulfoxide (DMSO) using 10 ns pulses at 532 nm. The non linear absorption of the complexes has been studied using the Z-scan technique. The study showed that both the singlet and triplet excited state contributes to the non linear absorption behavior. The nonlinear third-order susceptibility and second-order hyperpolarizability values of the complexes are reported. It was observed that two of the symmetric phthalocyanine complexes (**5-** α substituted with aminophenoxy and **9** -β substituted with carboxyphenoxy) showed better and promising optical nonlinearity when compared to the other complexes studied.

Keywords: Zinc phthalocyanine, alkyne, two photon absorption, limiting threshold, nonlinear absorption

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