Nonlinear Optical Response of Self-Assembled Molecular Corners

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Résumé en anglais	During the last years there is a growing effort in order to synthesize, functionalize and characterize modern molecular systems, which will have enhanced nonlinearities in order to be utilized in modern photonic applications. The nonlinearities are generally known to be significantly enhanced in systems which exhibit strong charge transfer within specially chosen moieties acting as electron donors or acceptors. Utilizing proper functionalization the charge transfer can be more enhanced by increasing the amount, as well as the mobility of the p-electrons of the systems. In this work we quantify the magnitude of the third order nonlinear susceptibility χ(3) of the TTF based molecular corners shown in Fig. 1, by the Degenerate Four Wave Mixing (DFWM) setup. Moreover by means of the Z-scan setup separate characterization of the nonlinear absorption of the systems is carried out. The advantage of these systems is that apart from their high nonlinearities can be combined in order to synthesize more complicated molecular systems like rotaxanes, catenanes etc.
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