



Huge Electro-/photo-/acidoinduced Second-order Nonlinear Contrasts from Multiaddressable Indolinoxazolodine

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Titre Huge Electro-/photo-/acidoinduced Second-order Nonlinear Contrasts from Multiaddressable Indolinoxazolodine

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In this work, linear and nonlinear optical properties of electro-/acido-/photoswitchable indolino[2,1-b]oxazolidine derivatives were investigated. The linear optical properties of the closed and open forms have been characterized by UV-visible and IR spectroscopies associated with DFT calculations. Nonlinear optical properties of the compounds have been obtained by ex situ and in situ hyper-Rayleigh experiments in solution. We show that protonated, oxidized, and irradiated open forms exhibit the same visible absorption and NLO features. In particular, the closed and open forms exhibit a huge contrast of the first hyperpolarizability with an enhancement factor of 40–45. Additionally, we have designed an original electrochemical cell that allows to monitor in situ the hyper-Rayleigh response upon electrical stimulus. We report notably a partial but good and reversible NLO contrast in situ during oxidation/reduction cycles. Thereby, indolinoxazolidine moieties are versatile trimodal switchable units which are very promising for applications in devices.

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