Correlation between structural studies and third order NLO properties of selected new quinolinium semi-organic compounds

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Description
New quinolinium semi-organic compounds of formula (C 9 H 8 N) 2+· SO 4 2-, H 2 O (I)(bis-quinolinium sulphate monohydrate) and (C 9 H 8 N)+· NO 3-(II)(quinolinium nitrate) have been synthesized and characterized by UV–Vis absorption spectroscopy, nonlinear optical (NLO) measurements and by single crystal X-ray diffraction. The third order nonlinear optical properties of (I) and (II) were investigated using two methods: the degenerate four wave mixing technique (DFWM) performed in solution at λ= 532 nm and the third-harmonic generation (THG) measurements carried out on thin films at λ= 1064 nm. The NLO measurements showed that compound (I) presents better nonlinear optical properties compared to compound (II). To understand further the optical behaviour of (I) and (II), the crystal structures of both compounds were determined from accurate single crystal X-ray diffraction measurements performed at …