Lanthanide Double-Dekker Complexes of Phthalocyanines for 2nd-Order Nonlinear Optics

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Molecular photonics is a rapidly growing field that is reaching maturity. In particular, organic compounds and polymers are starting to be considered as efficient alternatives to inorganic materials for nonlinear optical (NLO) applications, such as electrical and all-optical modulation and switching [1].

For second-order NLO devices, two main strategies [2] have been pursued to introduce the required noncentrosymmetry in phthalocyanines: peripheral substitution of the macrocycle and intrinsic modification of the macrocycle.

Taking advantage of the well-known properties of rare-earth phthalocyanine double-deckers [3], a new architecture have been design to build a noncentrosymmetry third dimensional frameworks and their second order NLO properties have been measured by the Hyper-Raleigh Scattering (HRS) method.

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