

INCORPORATION OF PHOTO-RESPONSIVE ANIONS INTO MOLECULAR BASED MAGNETIC MATERIAL: TOWARDS MULTIFUNCTIONAL INORGANIC-ORGANIC HYBRID MATERIALS

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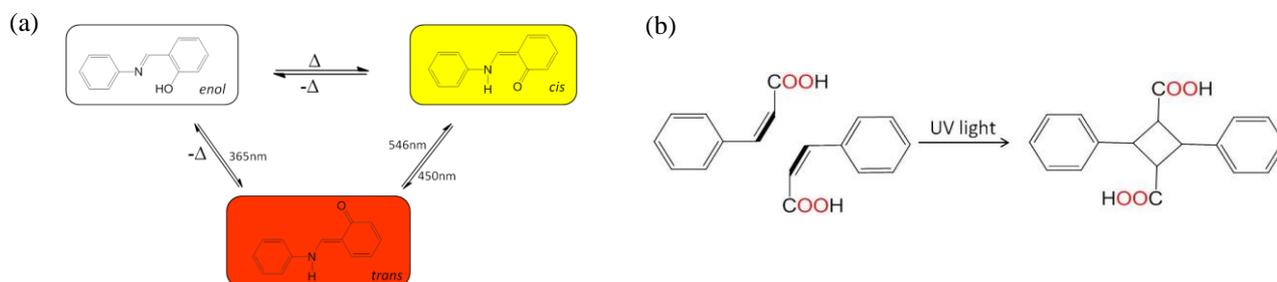
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For the past two decades, the field of ‘inorganic-organic’ materials has drawn much attention. The reason behind this growing interest lies in the fact that such kind of materials may possess properties of both organic and inorganic components, which makes them one of the most sighted materials to be used in modern era for many potential applications.^[1]

Due to their remarkable versatility, magnetic layered hydroxides, of general formula $M_2(OH)_3(X)$ are materials of choice for the development of multifunctional hybrid systems.^[2] In the present work, these lamellar host-structures are functionalized by an insertion-grafting reaction in which photochromic anions based on *N*-salicylidene aniline are inserted into cobalt simple magnetic layered hydroxides. *N*-salicylidene aniline molecules present the ability to be thermo- and photo-switchable under three distinct forms (enol, cis-keto and trans-keto form) within a three color set in the crystalline state as shown in Scheme 1a.^[3]



Scheme1: (a) Thermo- and photo-chromism in *N*-salicylidene aniline., (b) [2+2] Photodimerization of *trans*-cinnamic acid.

In another approach, sulfonate derivative of *trans*-cinnamic acid is incorporated into a Fe(II) spin crossover (SCO) coordination polymer to form a multifunctional inorganic-organic hybrid material. [2+2] photodimerization of *trans*-cinnamic acid under the influence of UV light is well known and shown in Scheme 1b.^[4] Insertion of photoswitchable molecules into magnetic materials not only can provide additional optical properties but may also leads to change in magnetic properties as a response to light irradiation of the hybrid compound.^[5]

References:

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