

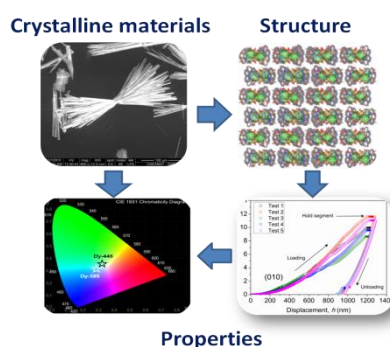
Multi-Funtional Compounds Based on Lanthanide-Sulfonate Coordination Polymers

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previous reports showed the capacity of the disulfonaphthalene molecules to form compounds with different structures, dimensionalities and topologies, which gives rise to interesting materials with very different properties as catalysis,[1] gas absorption,[2] luminescence,[3] magnetism and conductivity.[4] In this work we present a series of compounds formed in optimized hydrothermal conditions from lanthanide metals, 3-hydroxynaphthalene-2,7-disulfonate(3-OHNDS) and 1,10-phenanthroline (phen) as ligands. Three crystalline phases were identified with formula **[Eu(3-OHNDS)(Phen)(H₂O)₂]·3H₂O (Phase 1-Eu)**, **(C₄₄H₃₄N₄O₁₆S₄Eu₂) (Phase 2-Eu)** and **[Ln₂(3-OHNDS)₂(Phen)₂(H₂O)]·3H₂O (Phase 3-Ln)** where Ln = Tb, Dy, Ho, Er and Yb. The three phases were widely characterized by different techniques as FT-IR, thermal analysis, single crystal and powder X-ray diffraction. Nanoidentation analyses were performed in order to find a relationship between the structural features with the mechanical properties of the crystalline material. An exhaustive characterization of the PL properties was performed, involving excitation-emission experiments. Finally, study was developed on sensing of aromatic molecules when the compound interacts with naphthalene molecules, which make these compounds promising materials for the elaboration of chemical sensors.



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