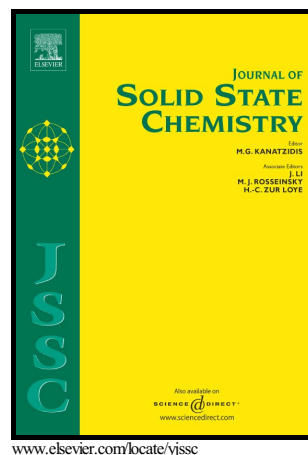


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Supramolecular isomerism in cadmium (II) coordination polymers from benzene-1,3,5-tribenzoate (BTB): Syntheses, Structures and Luminescent Properties

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Supramolecular isomerism in cadmium (II) coordination polymers from benzene-1,3,5-tribenzoate (BTB): Syntheses, Structures and Luminescent Properties

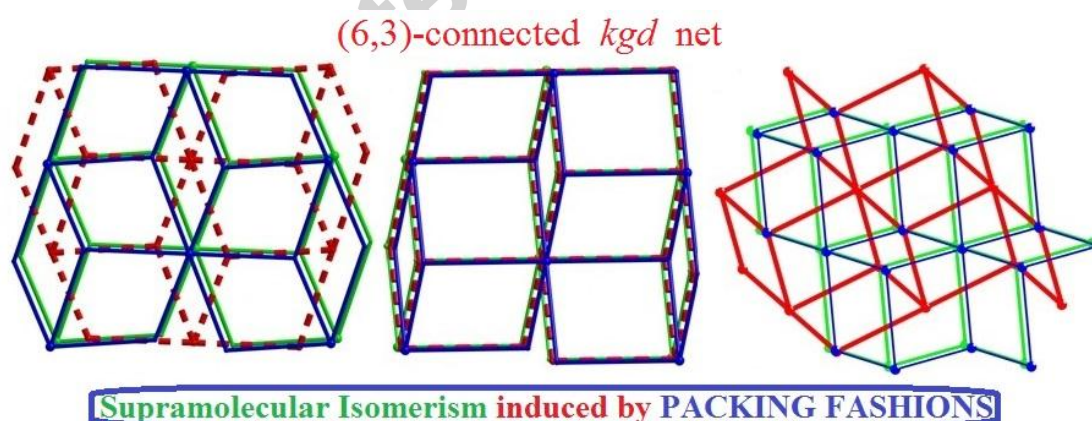
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ABSTRACT: By tuning the solvent mixture, four Cd^{II}-based compounds, [Cd₃(BTB)₂(DMA)₄]₂·2DMA (**1α**), [Cd₃(BTB)₂(DMA)₄]₂·2DMA (**1β**), [Cd₃(BTB)₂(DMF)₄]₂·2DMF (**1γ**), Cd₂(BTB)(HCOO)(DMF)₃ (**2**) have been successfully separated from H₃BTB ligand and Cd(NO₃)₂ salts. Structural analyses revealed that compounds **1α**, **1β** and **1γ** are iso-structural and have essentially identical local and two-dimensional structures constructed from trinuclear Cd₃(OCO)₆ unit. Their structural differences only arise from the different packing fashion, which is a novel mode of supramolecular isomerism in coordination polymers. Compound **2** displays 3D two-fold interpenetrated network based on 1D infinite Cd₃(μ_{1,1,3}-OCO)₂(HCOO) chains containing mixed BTB³⁻ and formate ligands. The fluorescence measurements show that compounds **2** exhibit red-shifts (about 25 nm) in the solid state, compared with three iso-structural **1α**, **1β** and **1γ**, and this can be attributed to the cooperative effects of intraligand π-π* transitions and ligand-to-metal charge transfer (LMCT).

Graphic Abstract



By tuning the reaction media, three iso-structural compounds **1α**, **1β** and **1γ** built from trinuclear Cd₃(OCO)₆ unit have been synthesized, and exhibit supramolecular isomerism induced from the different packing fashion.

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