Novel Organometallic Molecular Building Blocks for Crystal Engineering

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Triphenilmethanol (TPM) and its derivatives, for example 4,4'bis(biphenilhydroxymethyl)biphenyl (DHMB), form chlatrate compounds in the solid state [1]. Their crystal structures are usually assembled through host-host –OH...HO- or through host-guest – OH...X interactions[2].

Our current work is addressed to the engineering of crystalline systems combining TPMs interlinked by metal centres structured in porous



frameworks, potentially able of hosting small guests. Our approach to the rational design of such architectures is based on the molecular tectonics method, in which the crystal structure is deconvoluted into the contributions of the single inorganic and organic building blocks, which are separately analyzed and optimized. The first step in the modeling of such systems consists in the introduction of a transition metal as bridge between two aromatic rings. The model ligand studied is α -(4-pyridyl)benzhydrol (LOH), which combines both the molecular structure of TPMs and the coordinating pyridine functionality. In this work we describe the solid-state organization of [M(LOH)₂X₂] (M: Pd, Pt, Cu, Zn, X= halide, acetate) and we correlate the supramolecular arrangement of the organic-inorganic matrix to the stereochemical attitudes of the inorganic component.

[1] Toda F., Comprensive supramolecular chemistry, 6, cap.15. [2] Weber E., Skobridis K., Goldberg I., Chem. Comm., 1989, 1195.

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