

**MAIN GROUP ORGANOMETALLIC COMPOUNDS - USEFUL BUILDING
BLOCKS FOR SUPRAMOLECULAR ARCHITECTURES**

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Organometallic compounds in which a number of functionalized organic groups are attached to a central metal atom can be used as robust, air stable neutral or anionic tectons. Depending on the nature of the metal, the organic groups bearing recognition sites and anionic groups able to behave as bridges between different metal atoms (e.g. thiocyanate, azide), ditopic, tritopic or tetratopic tectons can be obtained. Symmetric/asymmetric ligands with appropriate distance between the recognition sites can be obtained and used as required for the network designed to be obtained. In addition, organometallic species exhibiting different types of chirality can be obtained; in some cases the presence of a lone pair of electrons might bring useful properties. Examples of such organometallic tectons based on a main group metal (Sn,^{1,2} Sb,^{3,4} Bi⁴) or mercury⁵ will be presented and discussed as well as some transition metal complexes and supramolecular solid-state architectures of different dimensionalities (linear coordination polymers or 3D networks) built on the base of various supramolecular interactions. Extension of related research using organophosphorus(V) chalcogenides will be also briefly discussed.⁶

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