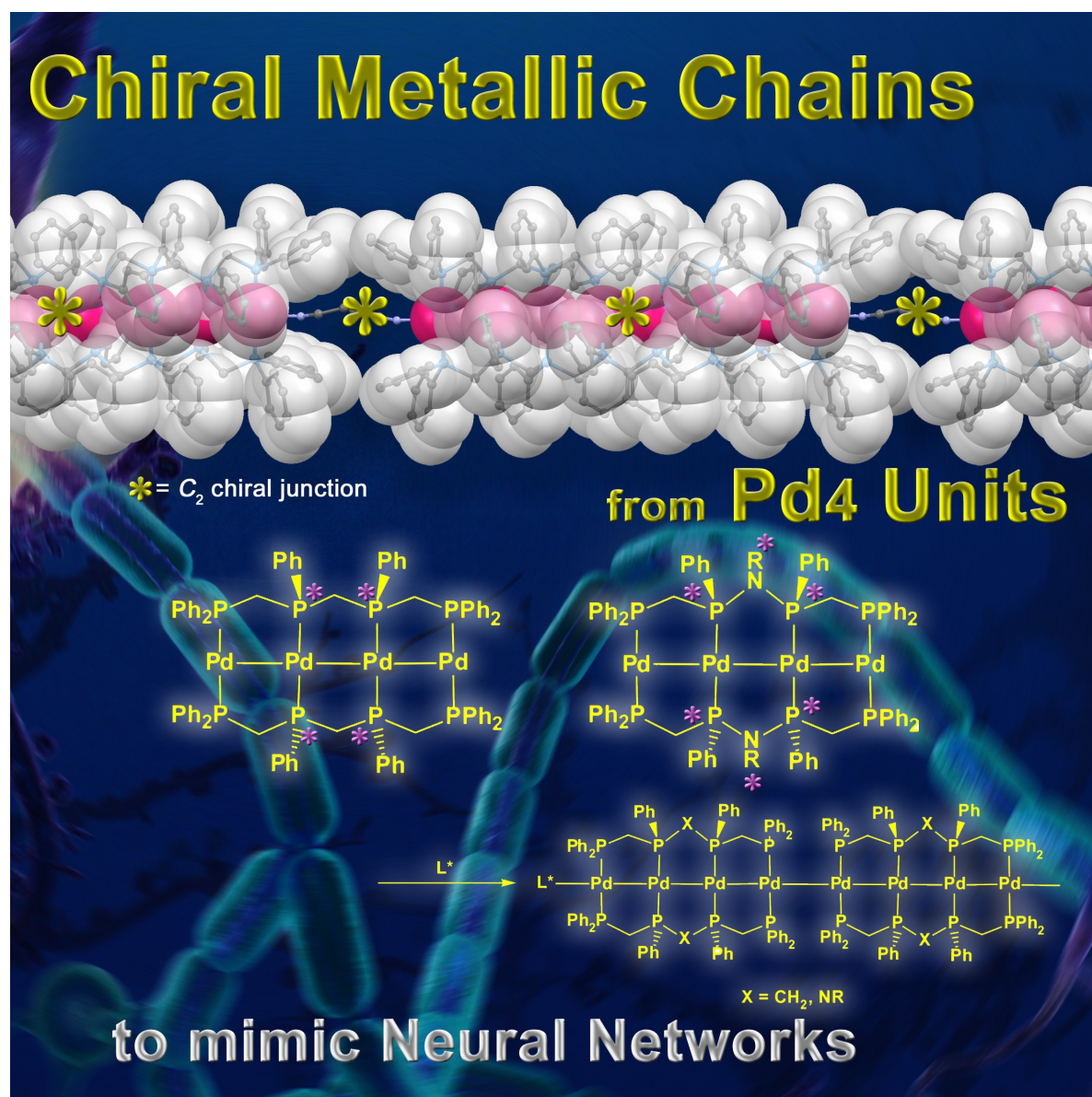


Functional Multinuclear Metal Systems in Organometallic, and Coordination Chemistry and Inorganic Biochemistry

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We are now trying, as one of our projects, to synthesize chiral metallic wires by incremental expansion of Pd₄ units, with a long distance goal of mimicking neural network systems.

We have intended to develop functional multinuclear metal systems with relevance to organometallic and coordination chemistry and inorganic biochemistry. Recent our projects are as follows; (1) Structurally constrained organometallic clusters by using multidentate phosphine ligands, in relation to extended metal atom chains of Pt and Pt (molecular metallic wire), highly luminous nano molecules with Au, Ag, and Cu ions, and cage-type CuH clusters, (2) Constructions of multinuclear reaction centers inspired by metalloenzymes, in which activations of C-H and Si-H bonds and H₂, O₂, and CO₂ were established dinuclear centers of Ir, Rh, Ni, and Cu atoms, and (3) Bioinorganic chemistry on di- and multinuclear metal complexes containing carbohydrate, wherein sugar phosphates and sugar acids were anchored on di- and tetranuclear Cu centers, and C-2 epimerization of aldoses through 1,2-carbon shift was established by Ni and Ca centers.

Keywords : Coordination Chemistry, Organometallic Chemistry, Bioinorganic Chemistry, Metal Clusters, Nano Molecular Science