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Metal-Acetylide Organic Frameworks: Synthesis, Characterization and Application Studies

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Graphynes are non-natural carbon allotropes associated with periodic acetylene linkages that involve a mixed hybridization of spn ($1 < n < 2$). However, related research work on the metallated graphynes is much less explored. In this talk, an interesting family of metal-acetylide organic frameworks (or metallated graphynes) with different ligand structures will be presented. Bottom-up nanosheets with different topological structures, pore sizes, surface areas and advanced functionalities (e.g. tunable optical, electronic and catalytic properties) can be prepared by different monomer combinations. It is shown that this new class of organometallic 2D nanomaterials can find applications in the fields of nonlinear optics and catalysis.

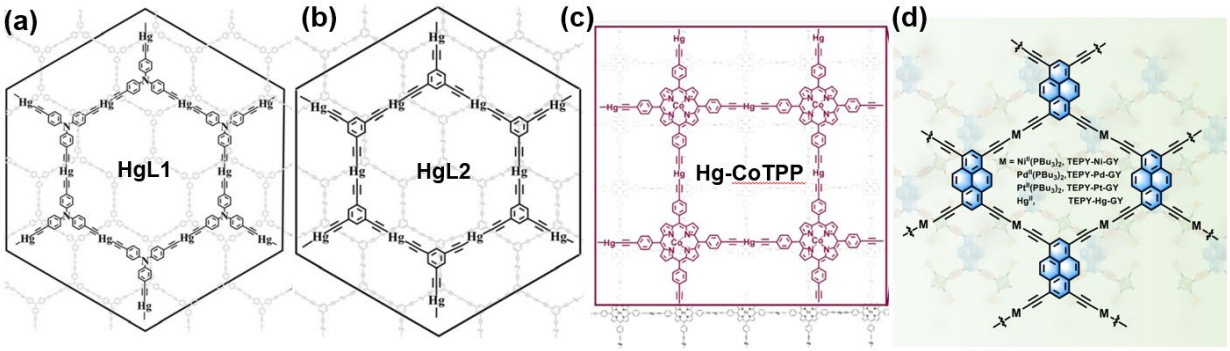


Figure 1. Chemical structures of metallated graphynes (a) **HgL1**, (b) **HgL2**, (c) **Hg-CoTPP** and (d) **TEPY-M-GYs**.

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