

Cation-Driven, Chemically-Tunable Formation of Different Discrete and Polymeric Self-Assembly Structures from a di-Gold Metallo-Tweezer

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The existence of metallophilic interactions in supramolecular assemblies has given rise to a large number of materials exhibiting photoluminescence and vapochromic properties, of great relevance for the applications in luminescence signaling and vapochemical sensing. Gold alkynyls are recently being regarded as an extremely interesting type of organometallic-based metalloligands due to their potential binding abilities via the alkynyl ligand and through aurophilic/metallophilic interactions.^{1,2} Self-assembly allows the preparation of highly complex molecular architectures from relatively simple materials. An in-depth understanding of supramolecular transformation is of key importance for the construction of smart functional materials. The careful control of the construction of materials through tunable supramolecular interactions is expected to allow the generation of specific outputs, such as tailored properties or functions. In this work, the complex supramolecular landscape of a di-gold metallo-tweezer (Figure 1) is successfully controlled by adding a series of metal cations. As can be seen in Figure 1, this metallo-tweezer has a strong tendency to form interesting supramolecular structures upon addition of Tl^+ , Ag^+ and Cu^+ . The choice of the cation is used to directing the formation of the designated molecular architecture.

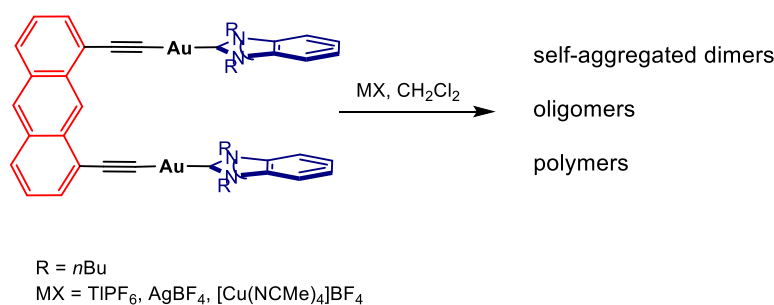


Figure 1

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References

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