Supplementary Information

Selective supramolecular assembly of multifunctional ligands on a Cu(111) surface: metallacycles, propeller trimers and linear chains

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Scanning tunneling spectra on metallacycle

Figure S1 (a) (8 nm × 8 nm, -0.2 V, 0.5 nA) High-resolution STM image of a triangle metallacycle formed by 3 cis-BTP-TPE molecules through coordination with Cu adatoms.

(b) Scanning tunneling spectra (dI/dV spectra) measured at tpy groups in the triangle metallacycle as marked by A–F in (a). The solid lines indicate the range of the electronic state.

We have conducted scanning tunneling spectroscopy measurements on the terpyridine (tpy) groups in the metallacycle shown in Fig. S1(a). Each of the six tpy groups has an electronic state in the range of 0.86 V to 1.06 V. Based on our previous work,1, 2 on Cu(111) surface, non-coordinated tpy group has an electronic state at 1.3 V; the tpy group coordinated with Cu atom has a down-shifted electronic state at 0.9 V−1.0 V. Thus we believe the cis-BTP-TPE molecules in the metallacycle are connected by Cu-coordination.
