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Supporting information for article:

A new Cd^{II} coordination polymer with a self-penetrating architecture induced by the molecular conformation of a rigid bi-thiophene ligand

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A new Cd^{II} coordination polymer with self-penetrating architecture induced by molecular conformation of rigid bithiophene ligand

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Table S1 Energies of HOMO and LUMO as well as the total energies of the *trans*-and *cis*-conformations of bpbp calculated with B3LYP/6-31G(d).

Optimized ligand	HOMO (eV)	LUMO (eV)	Total energy (a. u.)
trans-	-5.634	-2.308	-1599.00928089
cis-	-5.616	-2.279	-1599.00804463

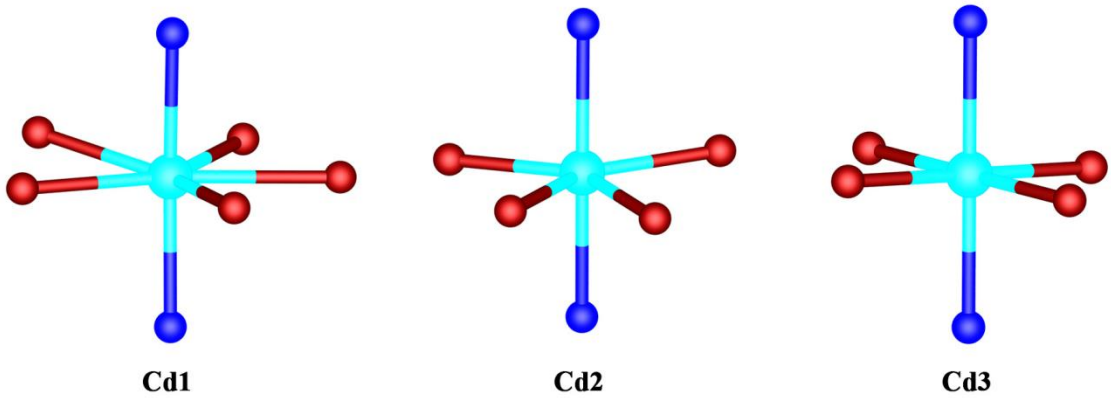

Figure S1 Coordination geometries of the three unique Cd(II) cations in (I)

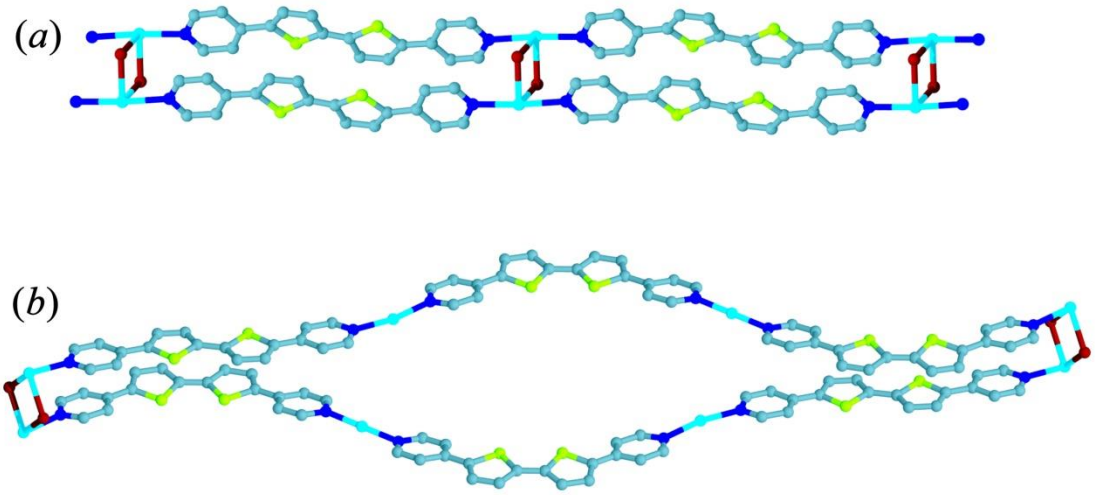

Figure S2 (*a*)The 1D double chain structure formed by $Cd_2(CO_2)_2$ and *trans*-bpbp ligands. (*b*) The spindle [Cd_8(*cis*-bpbp)$_4$(*trans*-bpbp)$_2$] ring.

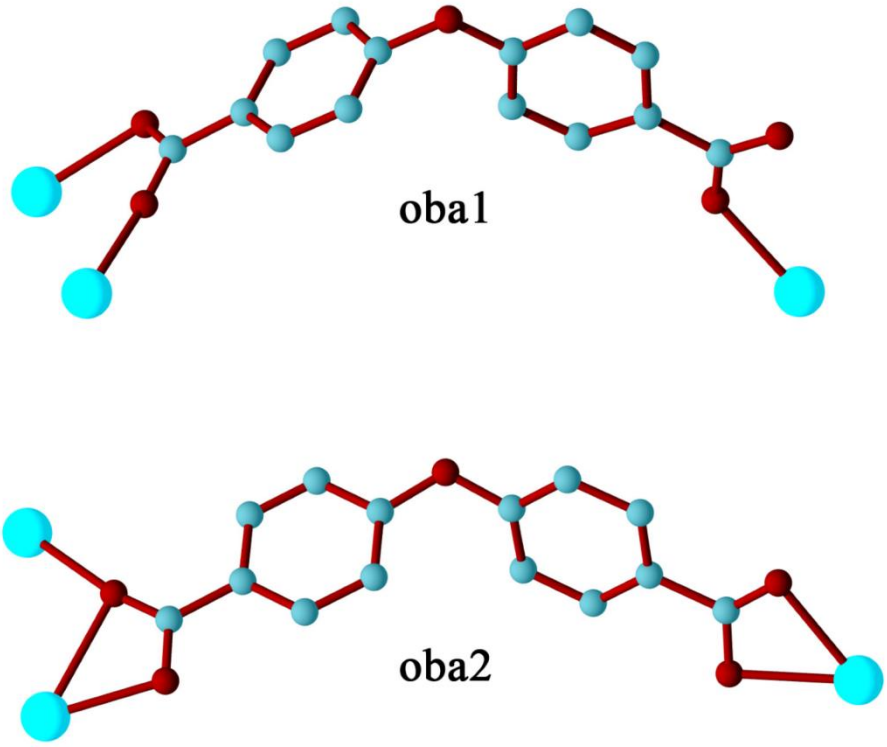

Figure S3 Two different μ_3-η^1:η^2 coordination modes of oba ligands.