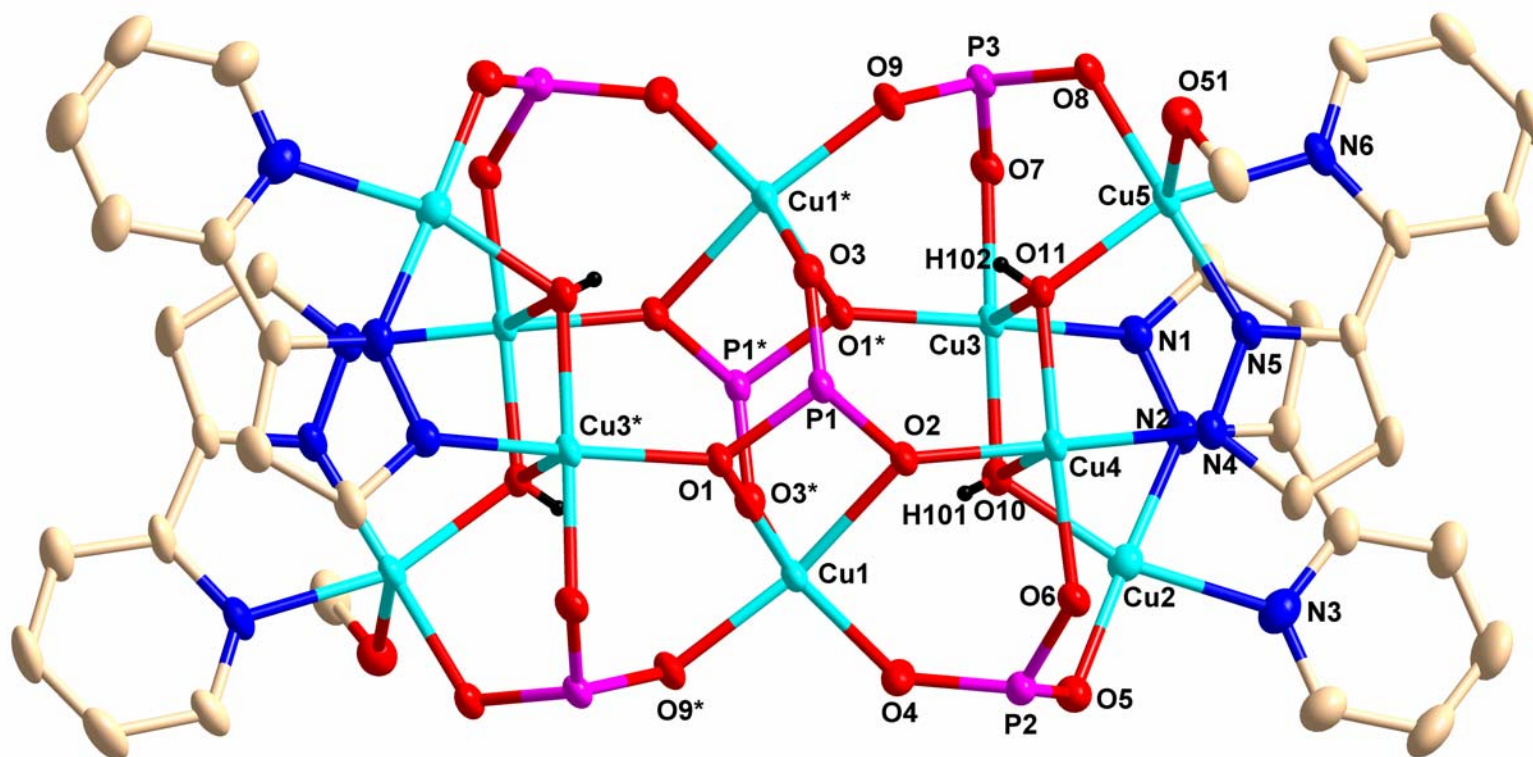


## A new structural form for a decanuclear copper (II) assembly

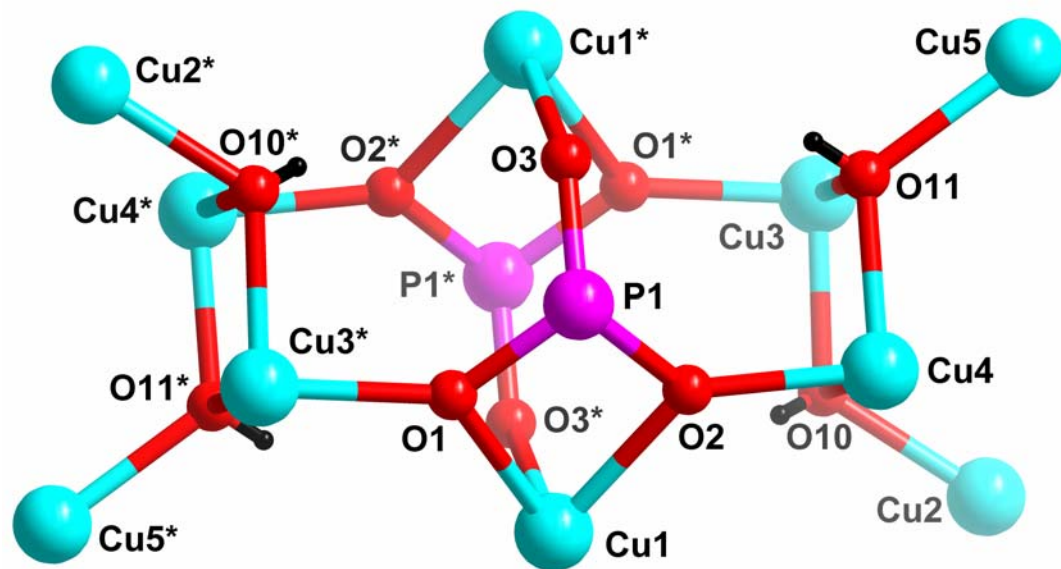
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**Figure S1** Structure of the *butterfly* cluster **1** (Colour version of the Fig. 1 in the main text). Structure shown at 50% ellipsoidal probability level.



**Figure S2** Core of the *butterfly* cluster **1** (Colour version of the Fig. 2 in the main text).

**Table S1** Selected bond lengths and bond angles for *butterfly* cluster **1**.

Bond Distances Cu-O and Cu-N (Å) <sup>a</sup>	Bond Distances P-O and N-N (Å) <sup>a</sup>	Bond Angles (°) <sup>a</sup>	
Cu1-O1 2.027(3)	P1-O1 1.560(3)	O9*-Cu1-O1 93.88(14)	O8-Cu5-N6 97.73(16)
Cu1-O2 2.037(3)	P1-O2 1.564(3)	O4-Cu1-O1 163.20(14)	O11-Cu5-N6 159.79(17)
Cu1-O3* 2.259(3)	P1-O3 1.490(3)	O1-Cu1-O2 70.97(13)	N5-Cu5-N6 78.61(17)
Cu1-O4 1.914(3)	P2-O4 1.522(4)	O1-Cu1-O3* 94.48(12)	N5-Cu5-O51 101.63(16)
Cu1-O9* 1.934(3)	P2-O5 1.556(4)	O4-Cu1-O2 95.99(14)	N6-Cu5-O51 94.43(16)
Cu2-O5 1.902(4)	P2-O6 1.526(4)	O9*-Cu1-O2 163.52(13)	O1-P1-O2 98.07(17)
Cu2-O10 1.929(4)	P3-O7 1.523(3)	O2-Cu1-O3* 94.75(12)	O3-P1-O1 115.30(19)
Cu2-N2 1.894(4)	P3-O8 1.532(3)	O4-Cu1-O9* 97.56(15)	O3-P1-O2 115.97(13)
Cu2-N3 2.064(5)	P3-O9 1.534(3)	O4-Cu1-O3* 97.19(14)	O4-P2-O5 110.7(2)
Cu3-O7 1.954(3)	N1-N2 1.335(6)	O9*-Cu1-O3* 92.81(13)	O4-P2-O6 113.8(2)
Cu3-O10 1.945(4)	N4-N5 1.351(6)	O5-Cu2- N3 99.63(18)	O6-P2-O5 110.7(2)
Cu3-O11 2.433(4)		N2-Cu2-O5 177.67(18)	O7-P3-O8 111.0(2)
Cu3-O1* 1.932(3)		N2-Cu2- N3 74.84(19)	O7-P3-O9 112.58(19)
Cu3-N1 1.961(4)		N2-Cu2-O10 84.31(18)	O8-P3-O9 109.9(2)
Cu4-O2 1.932(3)		O5-Cu2- O10 97.18(16)	P1-O1-Cu1 95.72(16)
Cu4-O6 1.933(3)		O10-Cu2-N3 163.12(18)	P1-O1-Cu3* 135.76(19)
Cu4-O11 1.945(4)		O1*-Cu3-O7 89.20(14)	P1-O2-Cu1 95.23(16)
Cu4-N4 1.953(4)		O1*-Cu3-O10 92.49(15)	P1-O2-Cu4 135.55(19)
Cu5-O8 1.936(3)		O1*-Cu3-O11 89.41(13)	P1-O3-Cu1* 134.31(19)
Cu5-O11 1.962(4)		O1*-Cu3-N1 170.95(16)	P2-O4-Cu1 134.2(2)
Cu5-O51 2.283(4)		O10-Cu3-O7 177.15(16)	P2-O5-Cu2 117.9(2)
Cu5-N5 1.907(4)		O10-Cu3-N1 87.83(17)	P2-O6-Cu4 124.1(2)
Cu5-N6 2.074(4)		O10-Cu3-O11 87.13(15)	P3-O7-Cu3 120.7(2)
		O7-Cu3-N1 90.14(16)	P3-O8-Cu5 120.8(2)
		O7-Cu3-O11 95.18(13)	P3-O9-Cu1* 133.2(2)
		N1-Cu3-O11 99.64(15)	Cu2-O10-Cu3 122.5(2)
		O2-Cu4-O6 89.90(14)	Cu3*-O1-Cu1 128.43(16)
		O2-Cu4-O11 93.36(15)	Cu4-O2-Cu1 129.05(16)
		O6-Cu4-O11 175.11(16)	Cu4-O11-Cu3 95.84(14)
		O2-Cu4-N4 169.37(16)	Cu4-O11-Cu5 122.7(2)
		O6-Cu4-N4 89.33(16)	Cu5-O11-Cu3 95.91(15)
		O11-Cu4-N4 88.13(17)	N1-N2-Cu2 129.8(3)
		O8-Cu5-O11 98.25(15)	N2-N1-Cu3 115.1(3)

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O8-Cu5-O51 86.93(14)	N5-N4-Cu4 115.8(3)
O11-Cu5-O51 98.69(15)	N4-N5-Cu5 129.5(3)
N5-Cu5-O11 83.72(17)	

<sup>a</sup> For atom labeling scheme, see Figures S1 and S2.

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