

## Electronic Supplementary Information

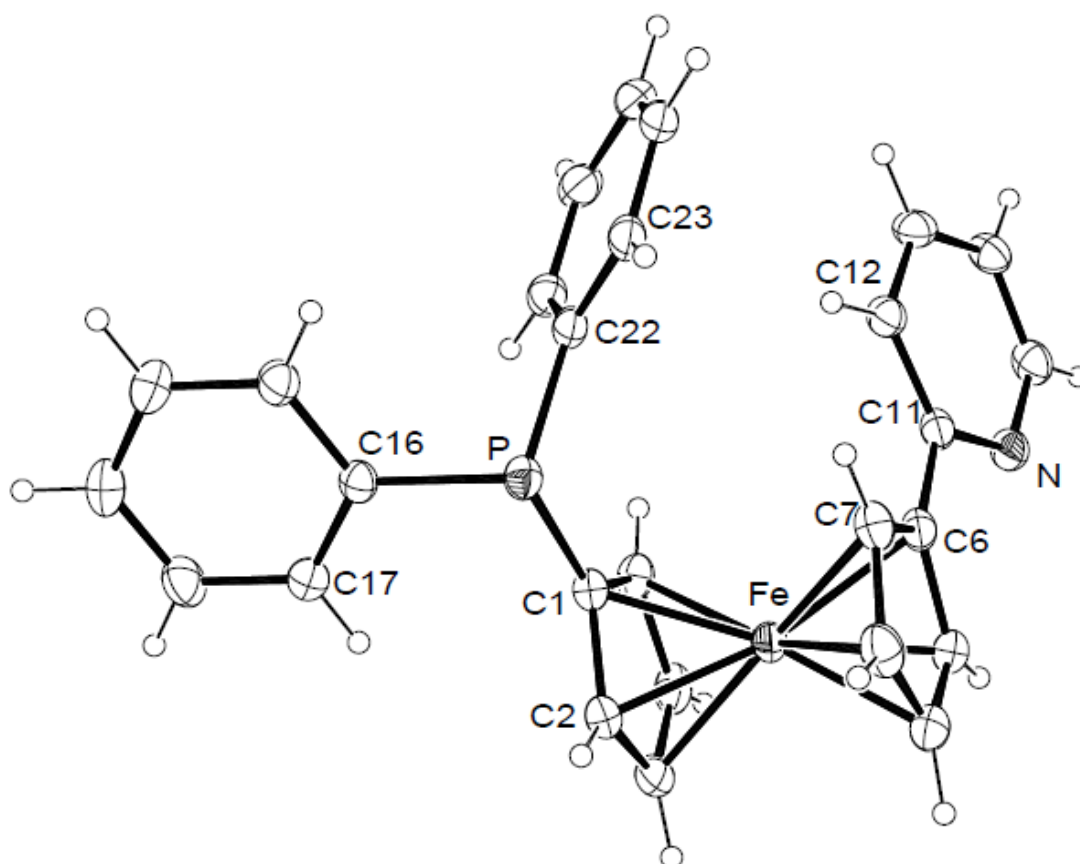
### The coordination behaviour of ferrocene-based pyridylphosphine ligands towards $\text{Zn}^{\text{II}}$ , $\text{Cd}^{\text{II}}$ and $\text{Hg}^{\text{II}}$

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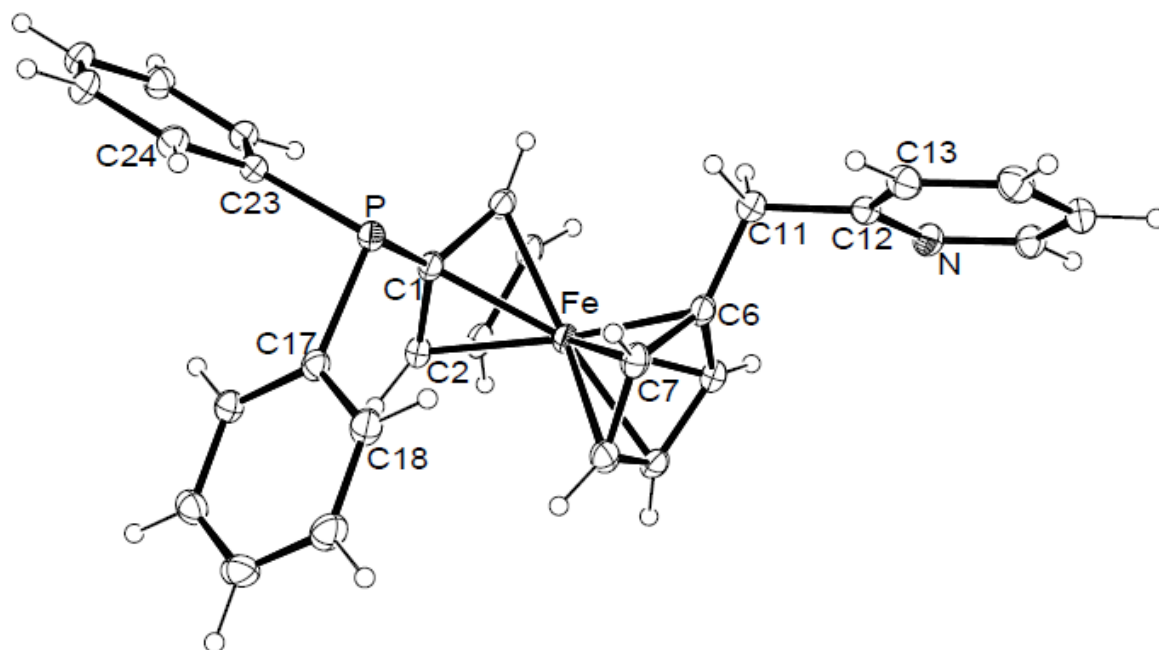
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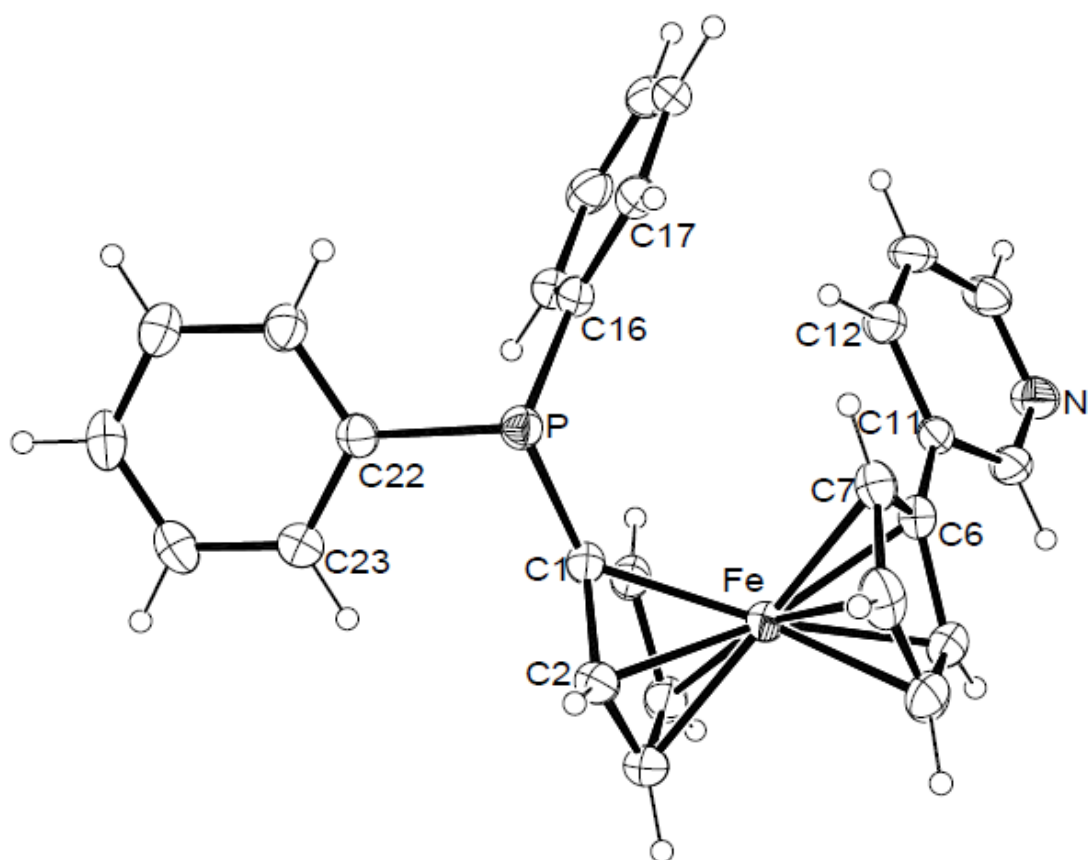
<sup>b</sup>*Department of Inorganic Chemistry, Faculty of Science, Charles University in Prague, Hlavova 2030, 12840 Prague 2, Czech Republic*



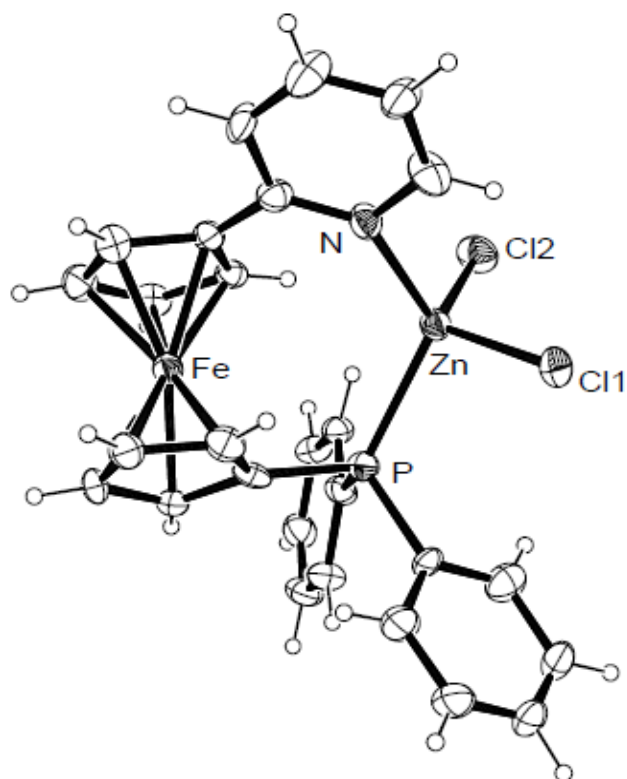
**Fig. S1** Molecular structure of 1 in the crystal.



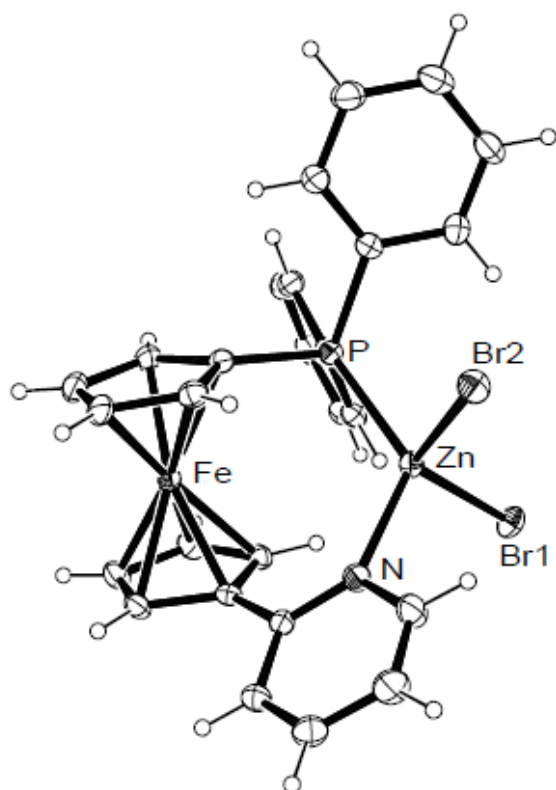
**Fig. S2** Molecular structure of **2** in the crystal.



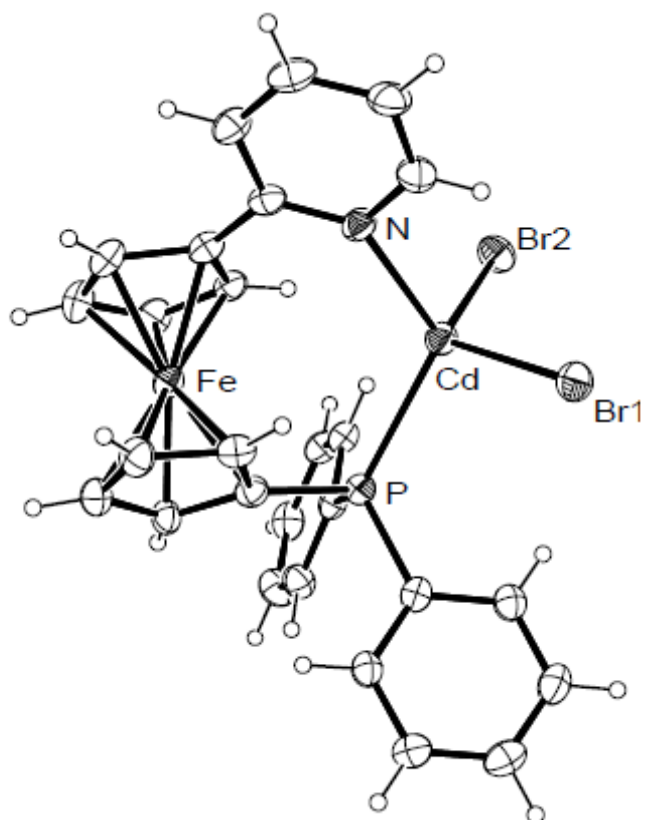
**Fig. S3** Molecular structure of **3** in the crystal.



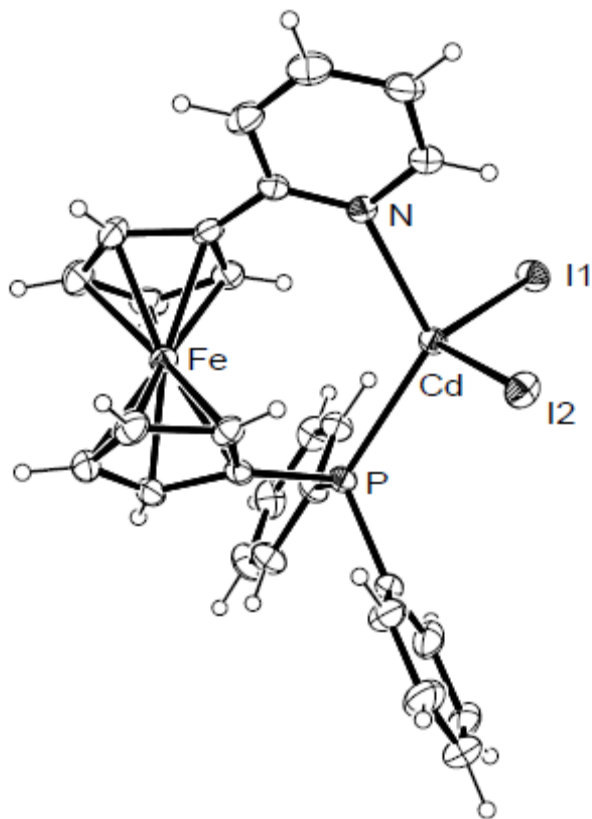
**Fig. S4** Molecular structure of [ZnCl<sub>2</sub>(1-κ<sup>2</sup>N,P)] in the crystal. Only one of the two independent molecules is shown.



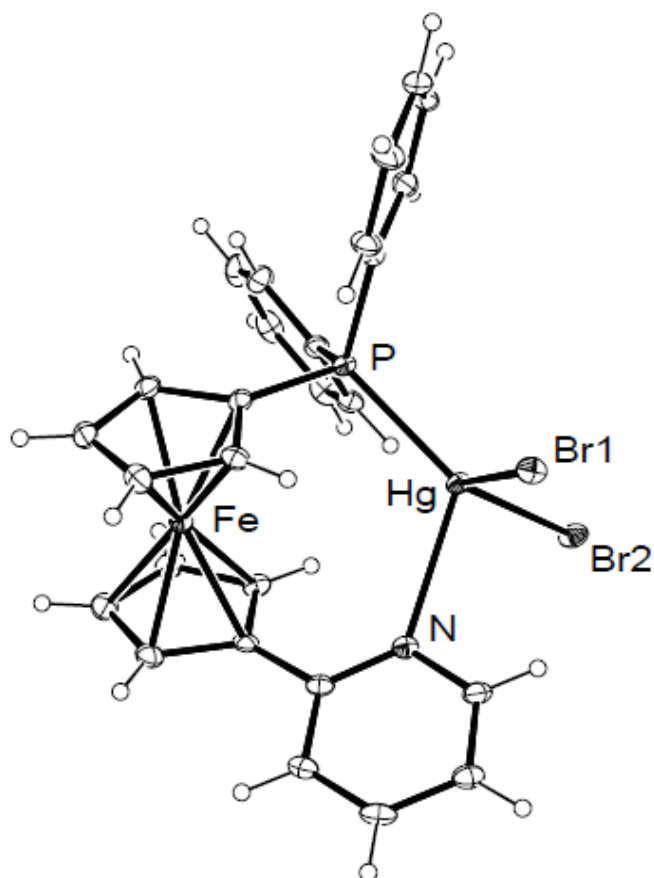
**Fig. S5** Molecular structure of [ZnBr<sub>2</sub>(1-κ<sup>2</sup>N,P)] in the crystal. Only one of the two independent molecules is shown.



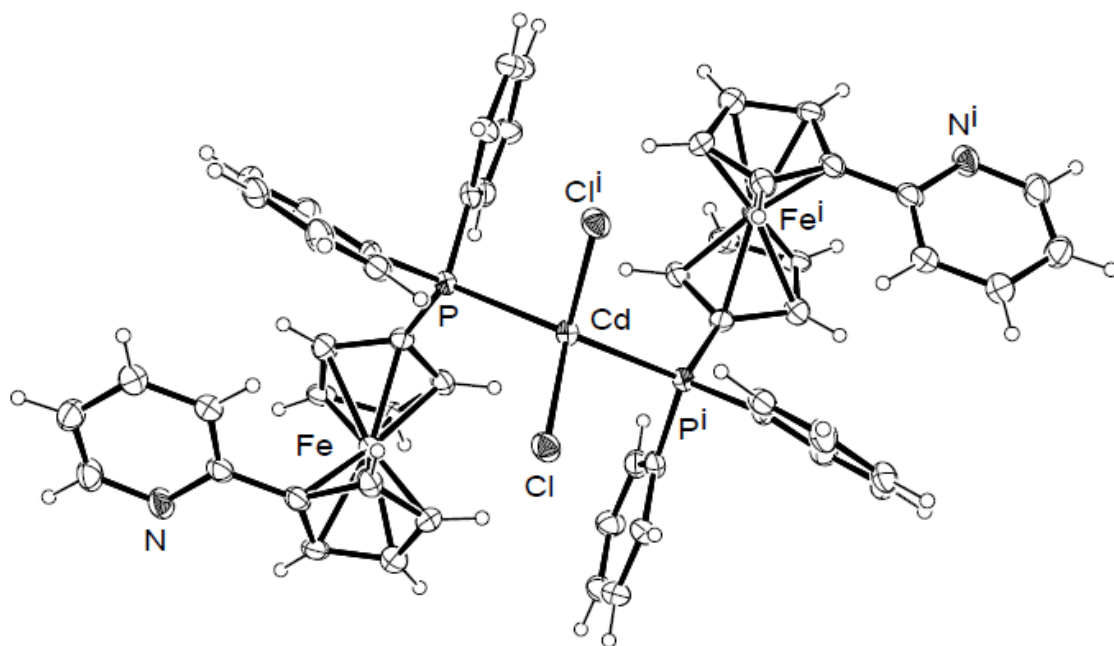
**Fig. S6** Molecular structure of  $[\text{CdBr}_2(\mathbf{1}-\kappa^2\text{N},P)]$  in the crystal.



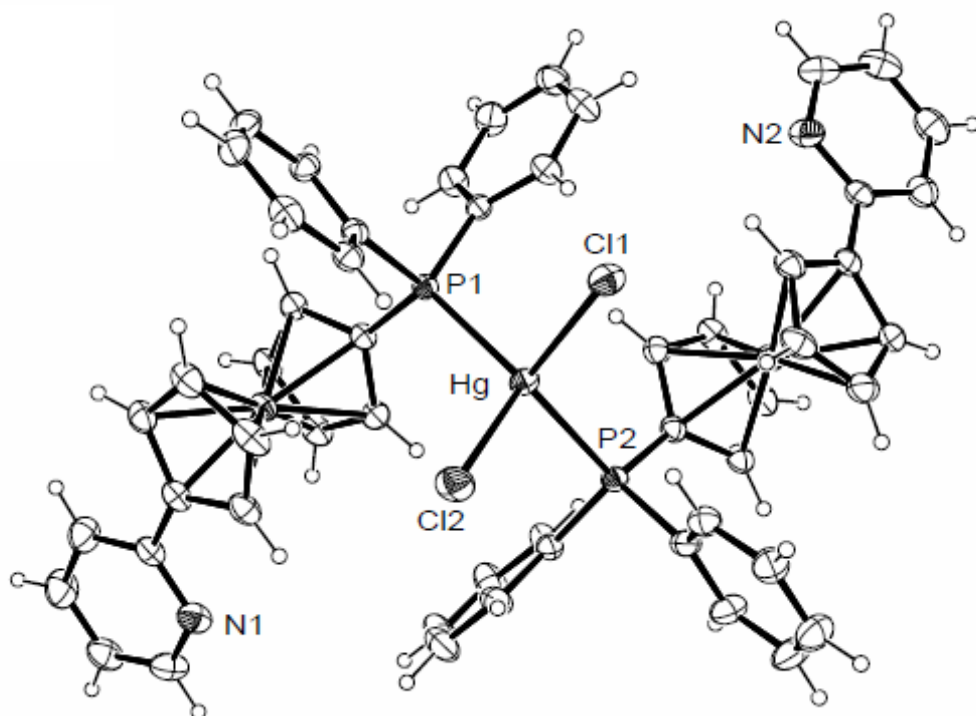
**Fig. S7** Molecular structure of  $[\text{CdI}_2(\mathbf{1}-\kappa^2\text{N},P)]$  in the crystal.



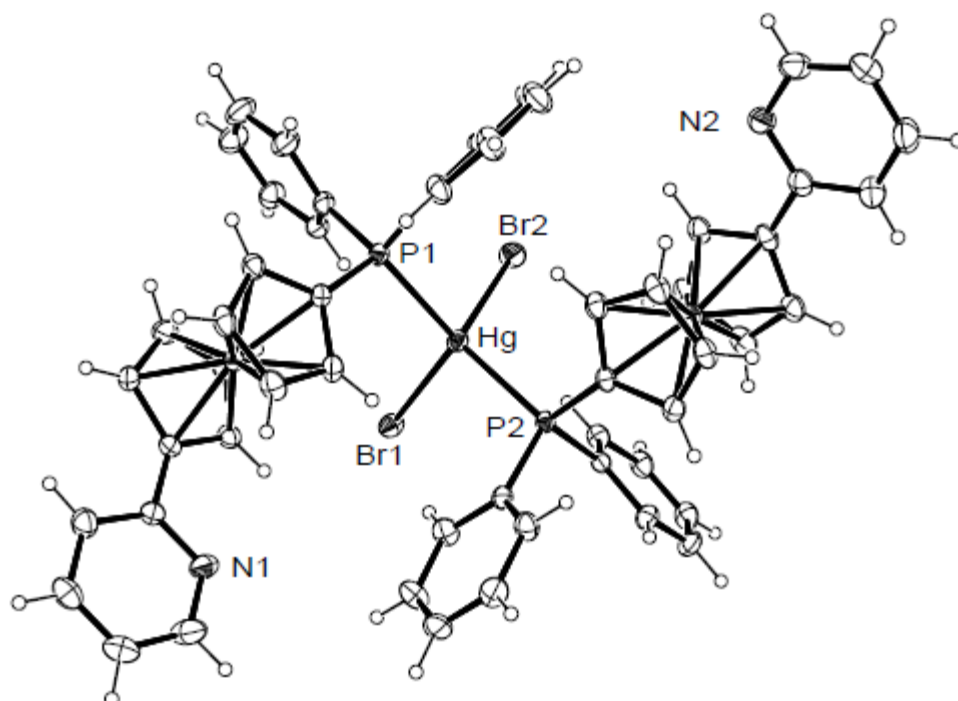
**Fig. S8** Molecular structure of [HgBr<sub>2</sub>(1-κ<sup>2</sup>N,P)] in the crystal.



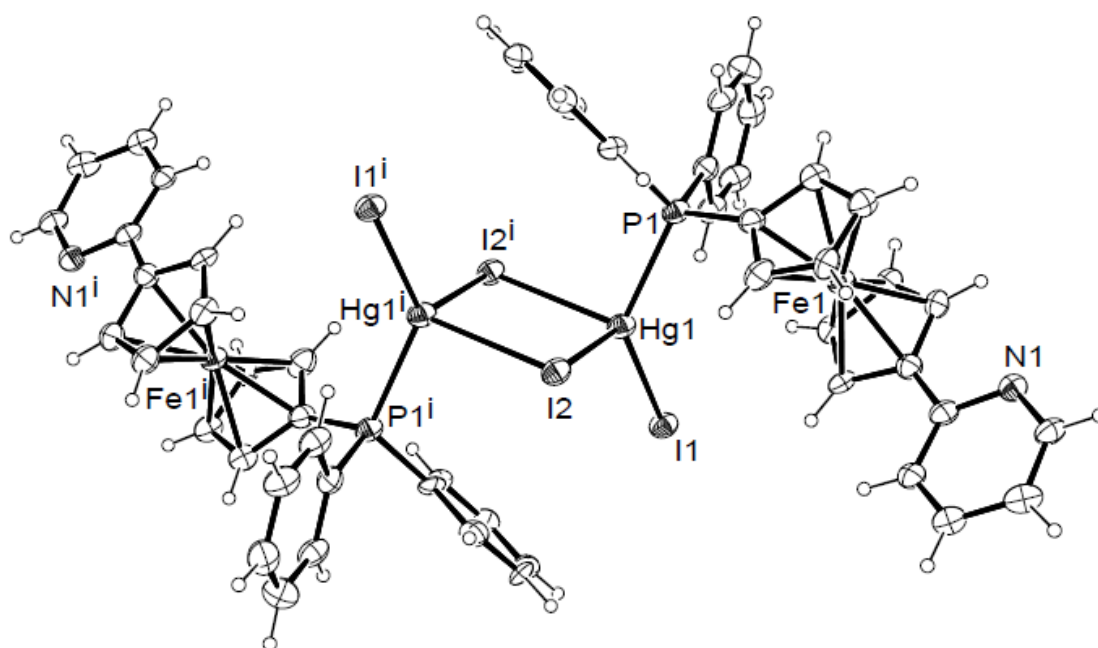
**Fig. S9** Molecular structure of [CdCl<sub>2</sub>(1-κP)<sub>2</sub>] in the crystal.



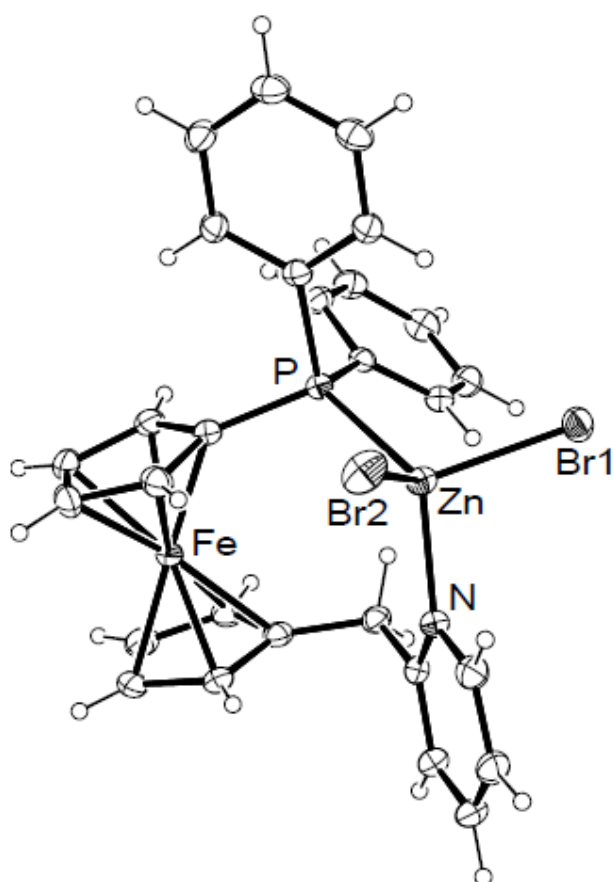
**Fig. S10** Molecular structure of  $[\text{HgCl}_2(1-\kappa P)_2]$  in the crystal.



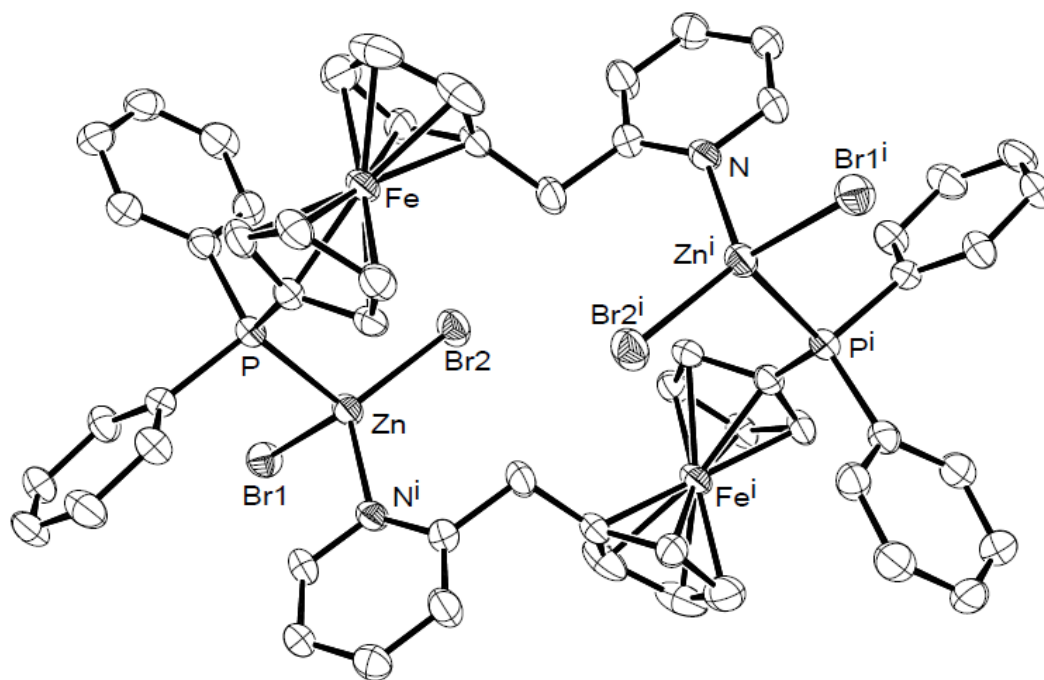
**Fig. S11** Molecular structure of  $[\text{HgBr}_2(1-\kappa P)_2]$  in the crystal.



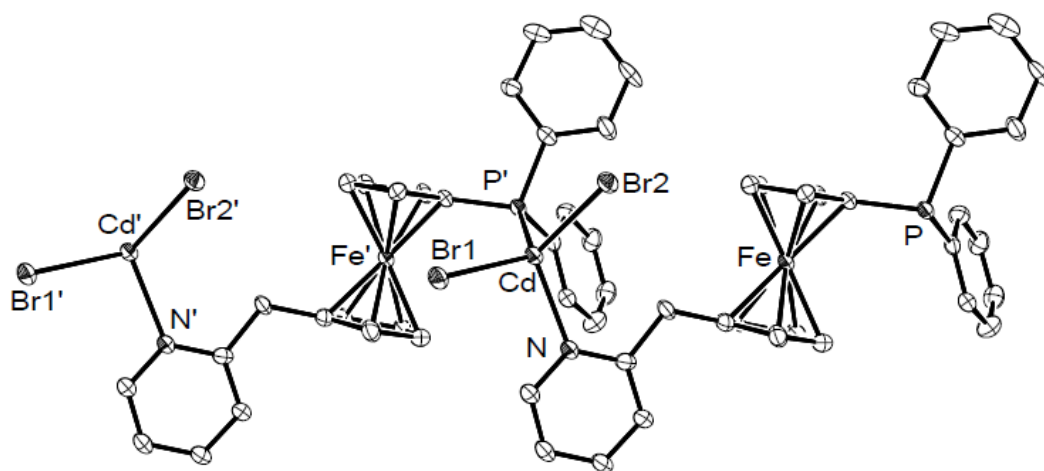
**Fig. S12** Molecular structure of  $[\text{HgI}(\mu\text{-I})(1\text{-}\kappa\text{P})]_2$  in the crystal.



**Fig. S13** Molecular structure of  $[\text{ZnBr}_2(2\text{-}\kappa^2\text{N,P})]$  in the crystal.

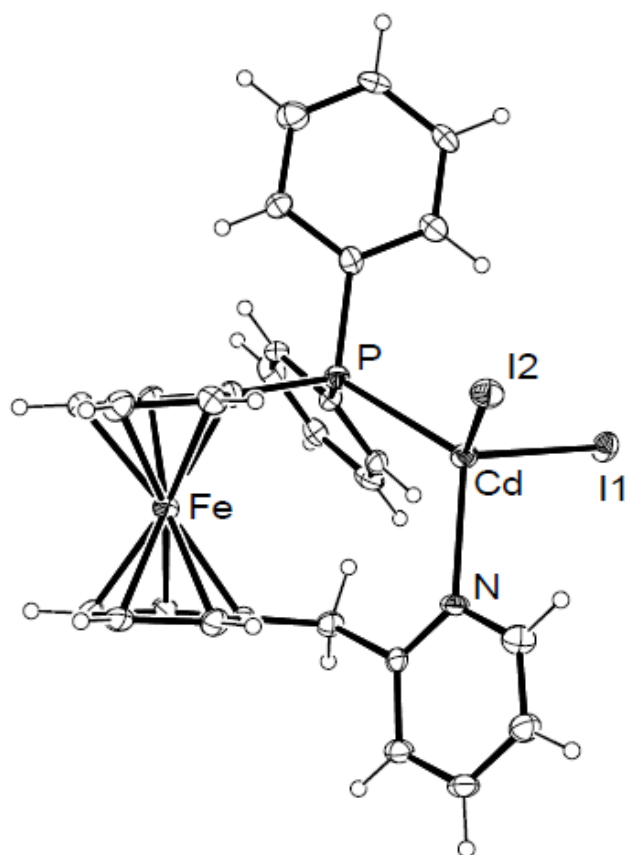


**Fig. S14** Molecular structure of  $[\text{ZnBr}_2(\mu\text{-2})]_2$  in the crystal.

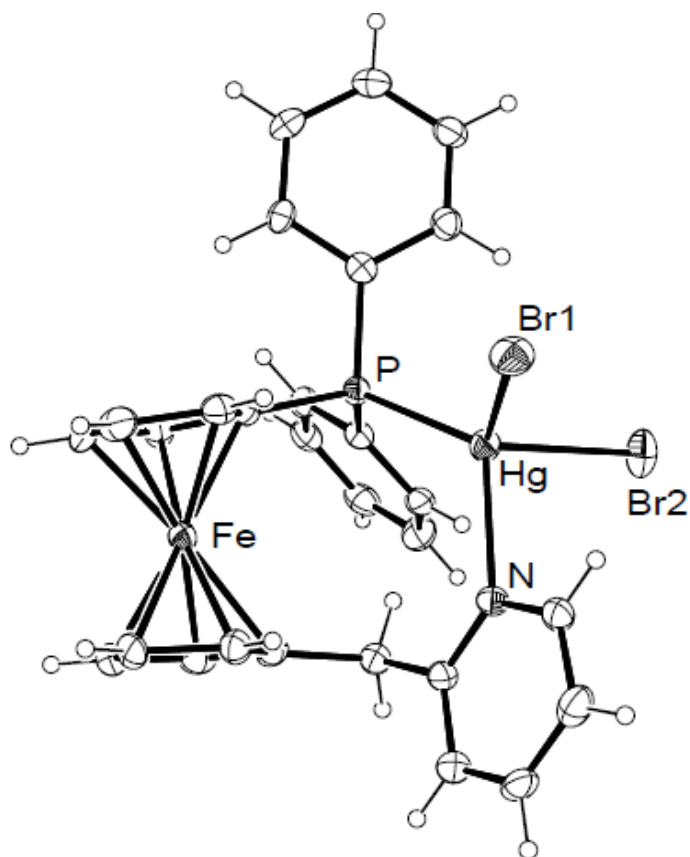


**Fig. S15** Molecular structure of  $[\text{CdBr}_2(\mu\text{-2})]_n$  in the crystal.

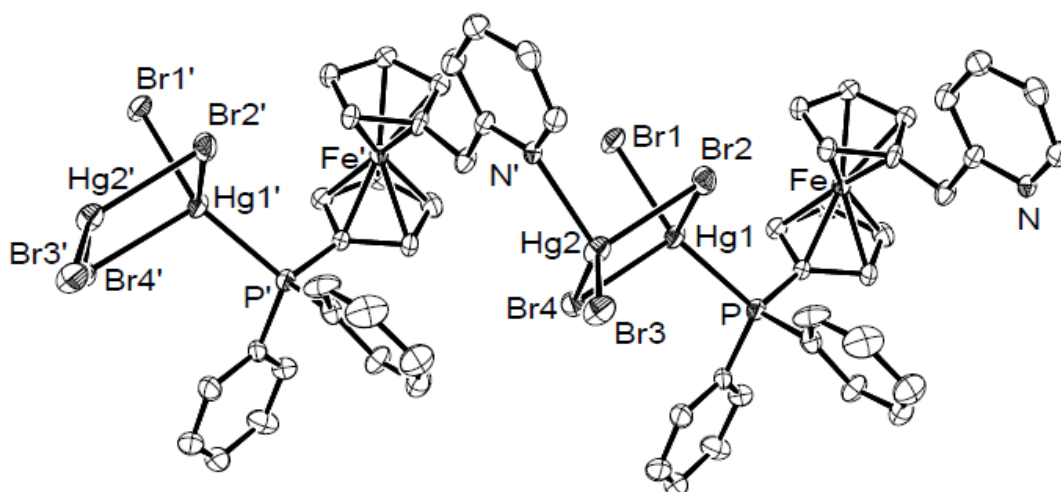




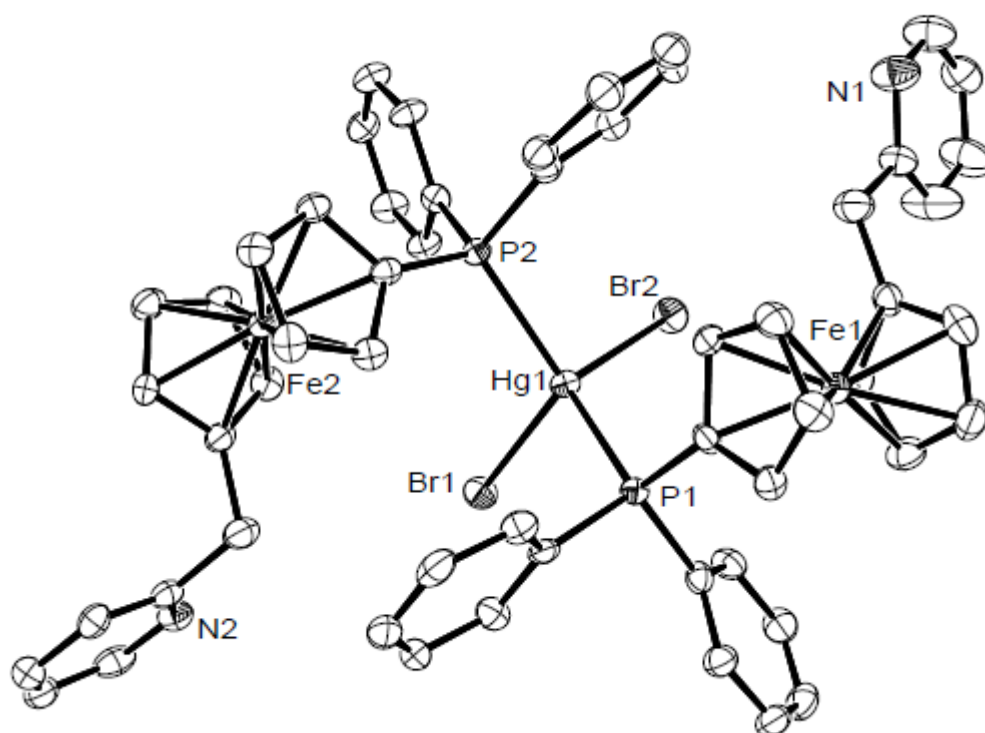
**Fig. S16** Molecular structure of  $[\text{CdI}_2(2-\kappa^2\text{N},\text{P})]$  in the crystal.



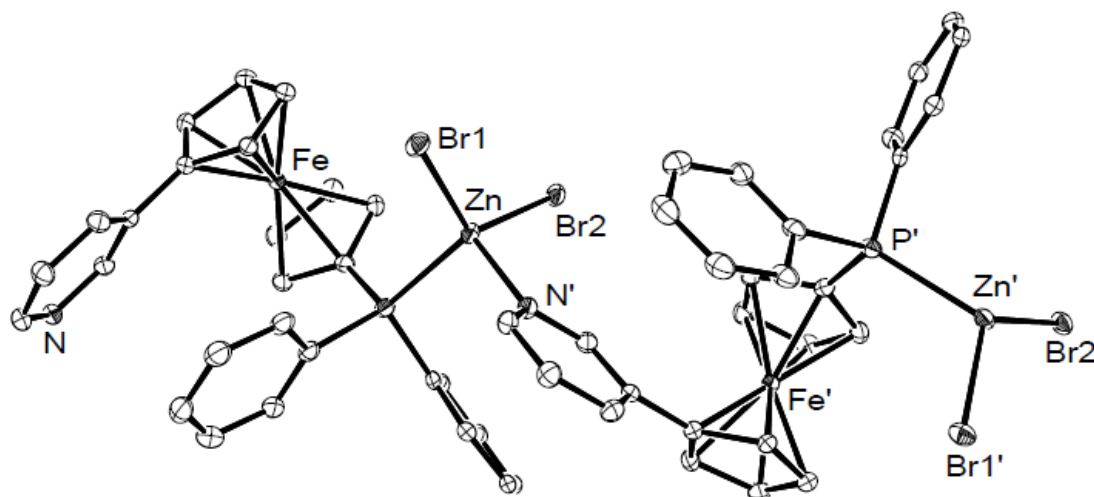
**Fig. S17** Molecular structure of  $[\text{HgBr}_2(2-\kappa^2\text{N},\text{P})]$  in the crystal.



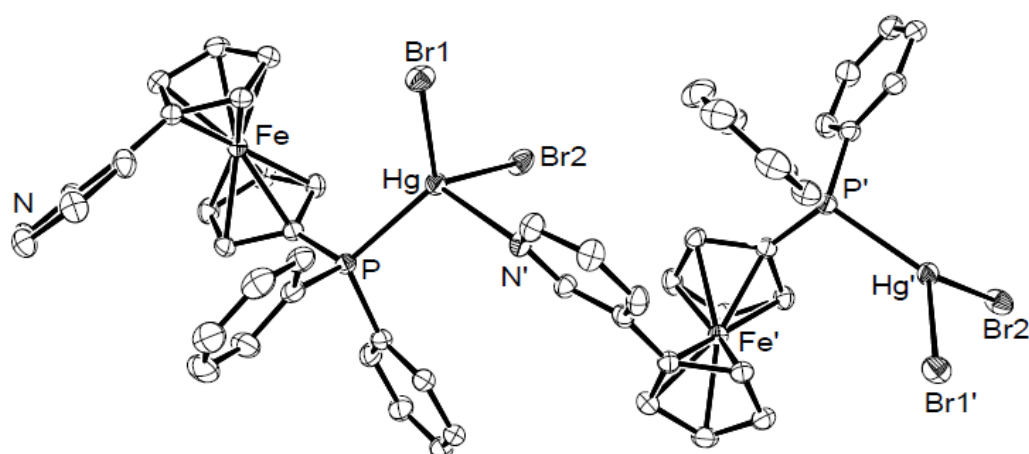
**Fig. S18** Molecular structure of  $[\{\text{HgBr}(\mu\text{-Br})\}_2(\mu\text{-2})]_n$  in the crystal.



**Fig. S19** Molecular structure of  $[\text{HgBr}_2(2\text{-}\kappa P)_2]$  in the crystal.



**Fig. S20** Section of the polymeric chain of  $[\text{ZnBr}_2(\mu\text{-3})]_n$  in the crystal.



**Fig. S21** Section of the polymeric chain of  $[\text{HgBr}_2(\mu\text{-3})]_n$  in the crystal.