

Table S1. Percent Contribution and the Overlap<sup>a</sup> of Iron, Porphyrin and Cyanopyridine Fragments to Selected Orbitals (Based on Mulliken Population Analysis per MO) of [Fe(P)(CNPy)<sub>2</sub>]<sup>+</sup>, Where P is the Porphin with Saddled Deformation (Displacement of  $\beta$ -C from the Porphyrin Mean Plane is 1.176 Å)

	E(eV)	Fe <sup>3+</sup>	P <sup>2-</sup>	2 CNPy	<Fe <sup>3+</sup>  P <sup>2-</sup> >	<Fe <sup>3+</sup>  CNPy>	<P <sup>2-</sup>  CNPy>
20b <sub>2</sub>	-5.484	63.5 (d <sub>x<sup>2</sup>-y<sup>2</sup></sub> )	26.1, 12.4 (9b <sub>2</sub> -a <sub>2u</sub> , 8b <sub>2</sub> )		-0.147	0.000	0.000
26e	-6.249	7.6 (d $\pi$ )	90.1 (15e- $\pi^*$ )		-0.015	0.000	0.001
20a <sub>1</sub>	-6.279	71.9 (d <sub>z<sup>2</sup></sub> )	6.7 (8a <sub>1</sub> )	19.8 (9a <sub>1</sub> )	0.010	-0.126	-0.036
25e	-7.760	71.1 (d $\pi$ )	14.4, 6.9 (13e- $\pi$ , 14e)		-0.028	-0.001	0.001
19b <sub>2</sub>	-8.220		47.8, 36.7, 7.9 (9b <sub>2</sub> -a <sub>2u</sub> , 8b <sub>2</sub> , 7b <sub>2</sub> )	3.9 (9b <sub>2</sub> )	0.002	-0.003	-0.019
8b <sub>1</sub>	-8.240	45.0 (d <sub>xy</sub> )	51.9 (6b <sub>1</sub> -a <sub>1u</sub> )		-0.021	0.000	-0.001
7b <sub>1</sub>	-8.652	47.0 (d <sub>xy</sub> )	46.3 (6b <sub>1</sub> -a <sub>1u</sub> )		0.007	0.000	-0.001
24e	-9.638	11.9 (d $\pi$ )	45.2, 15.7 (13e- $\pi$ , 14e)	16.9 (9e)	0.023	-0.005	-0.007
18a <sub>1</sub>	-10.619	15.4 (d <sub>z<sup>2</sup></sub> )		67.0, 7.7 (9a <sub>1</sub> , 8a <sub>1</sub> )	0.002	0.044	-0.007
15b <sub>2</sub>	-11.740	16.0 (d <sub>x<sup>2</sup>-y<sup>2</sup></sub> )	41.6, 25.6, 10.3 (6b <sub>2</sub> , 8b <sub>2</sub> , 9b <sub>2</sub> -a <sub>2u</sub> )		0.035	-0.002	-0.007
14b <sub>2</sub>	-12.674	10.6 (d <sub>x<sup>2</sup>-y<sup>2</sup></sub> )	49.9, 10.8, 10.4, 7.8, 6.8 (6b <sub>2</sub> , 8b <sub>2</sub> , 5b <sub>2</sub> , 4b <sub>2</sub> , 9b <sub>2</sub> -a <sub>2u</sub> )		0.029	0.000	-0.001

<sup>a</sup> To a first order approximation, positive overlap indicates bonding and negative overlap correlates to antibonding interaction between fragments.<sup>12</sup>

Table S2. Correlation Table for the Molecular Orbitals of Metalloporphyrin<sup>a</sup>

	<i>D</i> <sub>4h</sub>	<i>D</i> <sub>2h</sub>	<i>D</i> <sub>2d</sub> <sup>b</sup>	<i>C</i> <sub>4v</sub>	<i>C</i> <sub>2v</sub>
Metal					
<i>d</i> <sub>x<sup>2</sup>-y<sup>2</sup></sub>	<i>b</i> <sub>1g</sub>	<i>a</i> <sub>g</sub>	<i>b</i> <sub>2</sub> ( <i>b</i> <sub>1</sub> )	<i>b</i> <sub>1</sub>	<i>a</i> <sub>1</sub> ( <i>a</i> <sub>2</sub> )
<i>d</i> <sub>z<sup>2</sup></sub>	<i>a</i> <sub>1g</sub>	<i>a</i> <sub>g</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>
<i>d</i> <sub>xz</sub> , <i>d</i> <sub>yz</sub>	<i>e</i> <sub>g</sub>	<i>b</i> <sub>2g</sub> , <i>b</i> <sub>3g</sub>	<i>e</i>	<i>e</i>	<i>b</i> <sub>1</sub> , <i>b</i> <sub>2</sub>
<i>d</i> <sub>xy</sub>	<i>b</i> <sub>2g</sub>	<i>b</i> <sub>1g</sub>	<i>b</i> <sub>1</sub> ( <i>b</i> <sub>2</sub> )	<i>b</i> <sub>2</sub>	<i>a</i> <sub>2</sub> ( <i>a</i> <sub>1</sub> )
Porphyrin					
LUMO	<i>e</i> <sub>g</sub>	<i>b</i> <sub>2g</sub> , <i>b</i> <sub>3g</sub>	<i>e</i>	<i>e</i>	<i>b</i> <sub>1</sub> , <i>b</i> <sub>2</sub>
HOMO	<i>a</i> <sub>1u</sub>	<i>a</i> <sub>u</sub>	<i>b</i> <sub>1</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>
	<i>a</i> <sub>2u</sub>	<i>b</i> <sub>1u</sub>	<i>b</i> <sub>2</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>
HOMO-1	<i>e</i> <sub>g</sub>	<i>b</i> <sub>2g</sub> , <i>b</i> <sub>3g</sub>	<i>e</i>	<i>e</i>	<i>b</i> <sub>1</sub> , <i>b</i> <sub>2</sub>

<sup>a</sup> Defining *x* and *y* axes as lying in the porphyrin plane along trans pyrrole nitrogens. <sup>b</sup> Symmetry representations for ruffle-shaped deformation are given in the parentheses.