Comproportionation Reaction and Hindered Rotation of Coordinated Pyridine Ring in Acetate Bridged Tetraplatinum(II) Cluster Having Pyridine Derivative Ligands in the Cluster Plane

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Figure S1. Time course of $^1$H NMR peak intensity during the comproportionation reaction between 0 and 4, and between 4 and 8. S1

Figure S2. Temperature dependent $^1$H NMR spectra of the dmap $\beta$ proton in 4'a. S2

Table S1. Rate constants for dmap ring rotation in 8a and 6a. S3

Figure S3. Eyring plot for dmap ring rotation in 8a and 6a. S3
\[ [A] + [B] \xrightarrow{k_1} 2[C] \quad [A]_0 = [B]_0 = 4 \text{ mmol} \quad K = k_1 / k_{-1} \]

\[
\frac{d[C]}{([C] - M) ([C] - [C]_{\infty})} = \left( \frac{1}{2} \cdot \frac{2}{K} \right) k_1 \cdot dt
\]

\[
M = \frac{(2 + \sqrt{K})^2}{K - 4}
\]

\[
[C] = \frac{1 - MN \exp(-Lk_1t)}{1 - N \exp(-Lk_1t)} \cdot [C]_{\infty}
\]

\[
[A] = \frac{1 + MN \exp(-Lk_1t)}{1 - N \exp(-Lk_1t)} \cdot [A]_{\infty}
\]

\[
L = \frac{4[A]_0}{\sqrt{K}}, N = \text{integration const.}
\]

Fitting Function: \[ I = \frac{(2 + \sqrt{K})^2}{K - 4} N \exp\left(-\frac{4[A]_0}{\sqrt{K}} k_1 t\right) \quad \text{or} \quad I = \frac{(2 + \sqrt{K})^2}{K - 4} N \exp\left(-\frac{4[A]_0}{\sqrt{K}} k_1 t\right) \]

variable: \( k_1, N, F \) fixed: \( K \)

**Figure S1.** Time course of \(^1\text{H} \) NMR peak intensity during the comproportionation reaction between 0 and 4, and between 4 and 8.
Figure S2. Temperature dependent $^1$H NMR spectra of the dmap $\beta$ proton in 4'a.
Table S1. Rate constants for dmap ring rotation in 8a and 6a.

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<th>temp.</th>
<th>8a siteA</th>
<th>6a siteB</th>
<th>siteC</th>
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</table>

These data were obtained by assuming that chemical shift difference between two environments at slow rotation limit is 1.2 ppm.

![Eyring plot for dmap ring rotation in 8a and 6a.](image)

Figure S3. Eyring plot for dmap ring rotation in 8a and 6a.