Supplementary Material (ESI) for Dalton Transactions

Supporting Information for:

Synthesis of nonanuclear heterometallic carbide clusters. Unexpected formation of $[Ru_6(CO)_{16}]^{2+}[Pt_2(CO)_2(dppm)_2]^{2-}$ ion pair on the way to $[Ru_6C(CO)_{16}Pt_3(dppm)_2]$.

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Figure S1. 101 MHz $^{31}P\{^1H\}$ spectrum of **1** (acetone-d_6, 293 K).

Figure S2. The diagram of spin-spin couplings in **2**, coupling constants and relaxation parameters of the isotopomers.

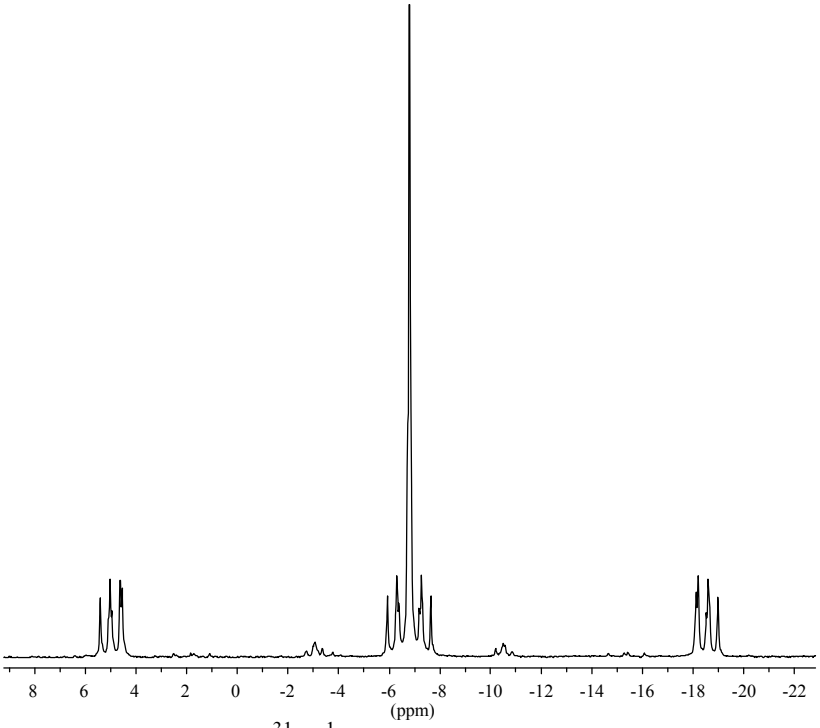

Figure S1. 101 MHz $^{31}P\{^{1}H\}$ spectrum of **1** (acetone-d_6, 293 K).

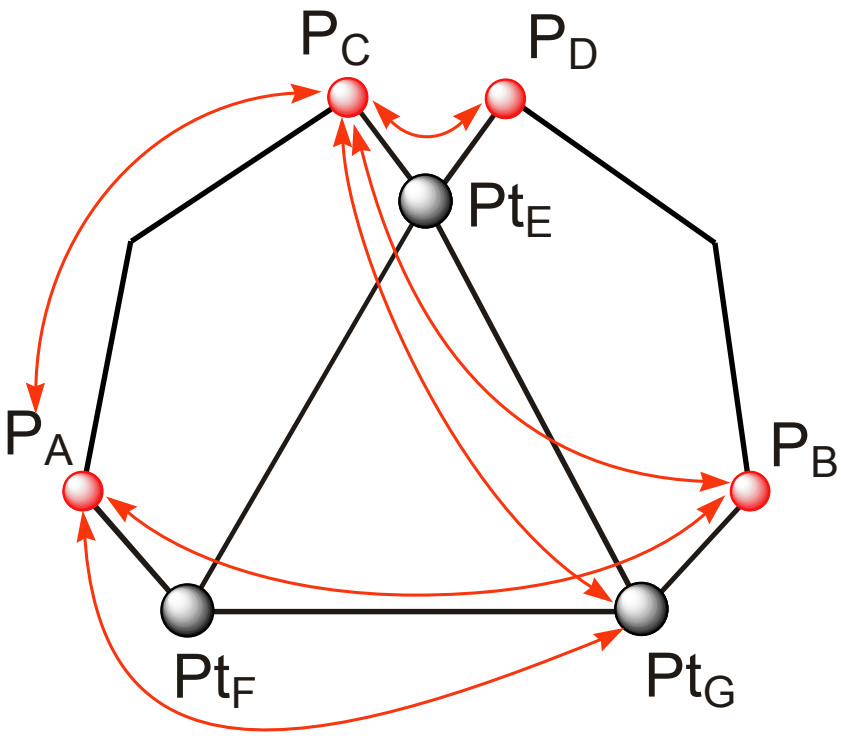

Figure S2. The diagram of spin-spin couplings in **2.**

Coupling constants (J, Hz) and relaxation parameters (t, s) of the isotopomers.

1. Isotopomer $(dppm)_2$, no magnetic ^{195}Pt.

δ (P_A) 13.0 t=0.15
δ (P_B) 13.0 t=0.15

δ (P_C) -30.0 t=0.25
δ (P_D) -30.0 t=0.25

$J(P_A - P_B)$ 100.0
$J(P_A - P_C)$ 34.5
$J(P_A - P_D)$ 21.5

$J(P_B - P_C)$ 21.5
$J(P_B - P_D)$ 34.5

$J(P_C - P_D$ 18.5

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2. Isotopomer $^{195}Pt(P_CP_D)(dppm)_2$.

δ (P_A) 13.0 t=0.1
δ (P_B) 13.0 t=0.1

δ (P_C) -30.0 t=0.1
δ (P_D) -30.0 t=0.1

J(P_A - P_B) 100.0
J(P_A - P_C) 34.5
J(P_A - P_D) 21.5
J(P_A – Pt_E) 42

J(P_B - P_C) 21.5
J(P_B - P_D) 34.5
J(P_B – Pt_E) 42

J(P_C - P_D 18.5
J(P_C – Pt_E) 3415

J(P_D – Pt_E) 3415

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3. Isotopomer $^{195}Pt(P_A$ or $P_B)(dppm)_2$.

δ (P_A) 13.0 t=0.01
δ (P_B) 13.0 t=0.01

δ (P_C) -30.0 t=0.15
δ (P_D) -30.0 t=0.01

J(P_A - P_B) 100.0
J(P_A - P_C) 34.5
J(P_A - P_D) 21.5
J(P_A – Pt_F) 4478

J(P_B - P_C) 21.5
J(P_B - P_D) 34.5

J(P_C - P_D) 18.5

J(P_D – Pt_F) 616

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4. Isotopomer $^{195}Pt(P_A$ and $P_B)(dppm)_2$.

δ (P_A) 13.0 t=0.01

δ (P_B) 13.0 t=0.01

δ (P_C) -30.0 t=0.01
δ (P_D) -30.0 t=0.01

J(P_A - P_B) 100.0
J(P_A - P_C) 34.5
J(P_A - P_D) 21.5
J(P_A – Pt_F) 4478

J(P_B - P_C) 21.5
J(P_B - P_D) 34.5
J(P_B – Pt_G) 4478

J(P_C - P_D) 18.5
J(P_C – Pt_G) 616

J(P_D – Pt_F) 616

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5. Isotopomer $^{195}Pt(P_A$ and $P_CP_D)(dppm)_2$.

δ (P_A) 13.0 t=0.01
δ (P_B) 13.0 t=0.01

δ (P_C) -30.0 t=0.01
δ (P_D) -30.0 t=0.01

J(P_A - P_B) 100.0
J(P_A - P_C) 34.5
J(P_A - P_D) 21.5
J(P_A – Pt_F) 4478
J(P_A – Pt_E) 42

J(P_B - P_C) 21.5
J(P_B - P_D) 34.5
J(P_B – Pt_E) 42

J(P_C - P_D) 18.5
J(P_C – Pt_E) 3415

J(P_D – Pt_E) 3415
J(P_D – Pt_F) 616

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6. Isotopomer $^{195}Pt(P_AP_BP_CP_D)(dppm)_2$.

δ (P_A) 13.0 t=0.01
δ (P_B) 13.0 t=0.01

δ (P_C) -30.0 t=0.01
δ (P_D) -30.0 t=0.01

J(P_A - P_B) 100.0
J(P_A - P_C) 34.5
J(P_A - P_D) 21.5
J(P_A – Pt_F) 4478
J(P_A – Pt_E) 42

J(P_B - P_C) 21.5
J(P_B - P_D) 34.5
J(P_B – Pt_E) 42
J(P_B – Pt_G) 4478

J(P_C - P_D) 18.5
J(P_C – Pt_E) 3415
J(P_C – Pt_G) 616

J(P_D – Pt_E) 3415
J(P_D – Pt_F) 616
J(P_D – Pt_G) 18.5