Supporting Information

for

Bimetallic Rare-Earth/Platinum Complexes Ligated by Phosphinoamides

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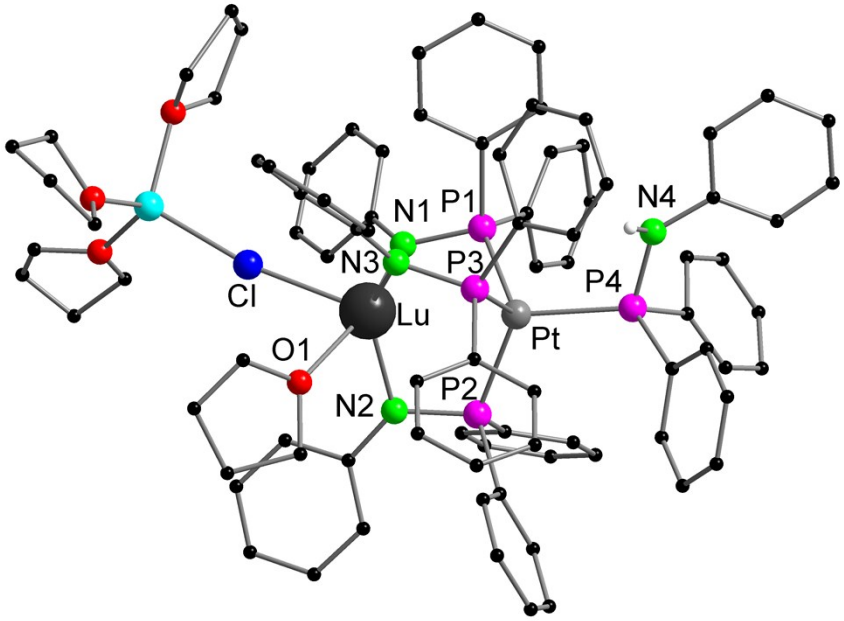

Figure S1: Solid-state structure of the anion of **1b**. Carbon bound hydrogen atoms are omitted for clarity. Selected bond lengths [Å], angles [°]: Pt-Lu 2.9523(9), Pt-P1 2.321(2), Pt-P2 2.337(2), Pt-P3 2.307(2), Pt-P4 2.324(2), Lu-Cl 2.601(2), Lu-O1 2.442(6), Lu-N1 2.269(6), Lu-N2 2.242(6), Lu-N3 2.297(6), Lu-P1 3.085(2), Lu-P2 3.107(2), Lu-P3 3.109(2), Cl-Li 2.31(2), P1-N1 1.658(7), P2-N2 1.650(6), P3-N3 1.664(6), P4-N4 1.683(7); P1-Pt-P2 106.10(8), P1-Pt3-P1 106.85(8), P1-Pt-P4 107.98(9), P2-Pt-P3 116.32(8), P3-Pt-P4 104.49(8), N1-Lu-N2 97.7(2), N1-Lu-N3 110.1(2), N2-Lu-N3 131.5(2), N1-Lu-Cl 85.5(2), N2-Lu-Cl 116.2(2), N3-Lu-Cl 105.2(2), N1-Lu-Cl 85.5(2), N2-Lu-Cl 116.2(2), N3-Lu-O1 81.4(2).

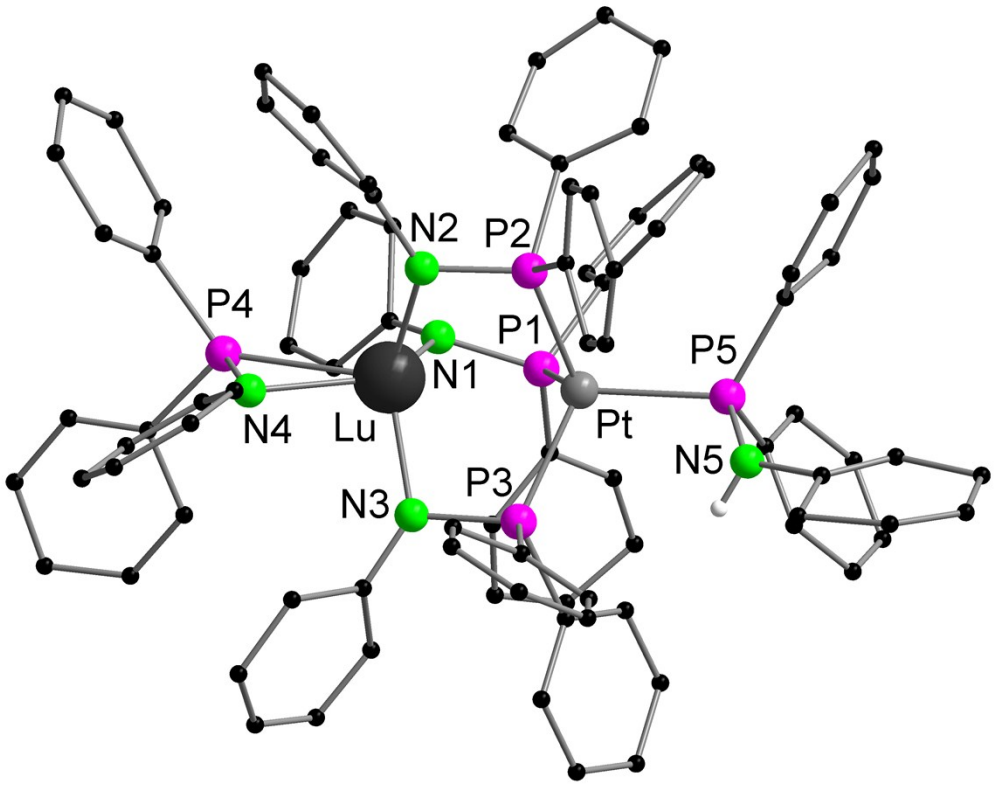

Figure S2: Solid-state structure of the anion of **2b**. Carbon bound hydrogen atoms are omitted for clarity. The X-ray data collected from **2b** was very poor, thus no further information is given.

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NMR Data of [(PPh$_2$NHPh)Pt{μ-(PPh$_2$NPh)}$_3$Ln(μ-Cl)Li(THF)$_3$] (Ln = Y (1a), Lu (1b)) and [(PPh$_2$NHPh)Pt{μ-(PPh$_2$NPh)}$_3$Y{η^2-(PPh$_2$NPh)}][Li(THF)$_4$] (2a).

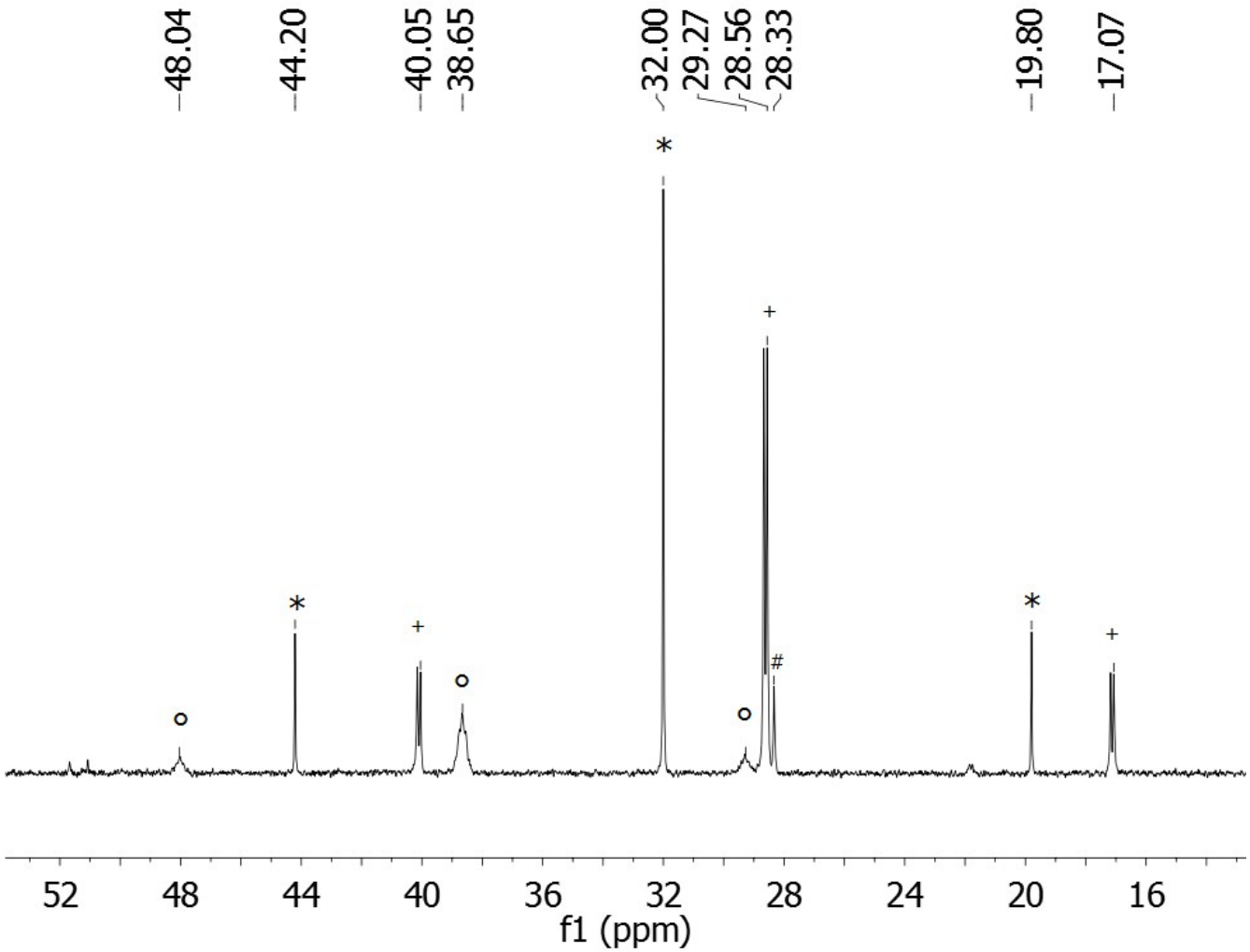

Figure S3: $^{31}P\{^1H\}$ NMR spectrum (C_6D_6, 121MHz) of **1a**; Each symbol is assigned to one set of signals. # $Ph_2PN(H)Ph$

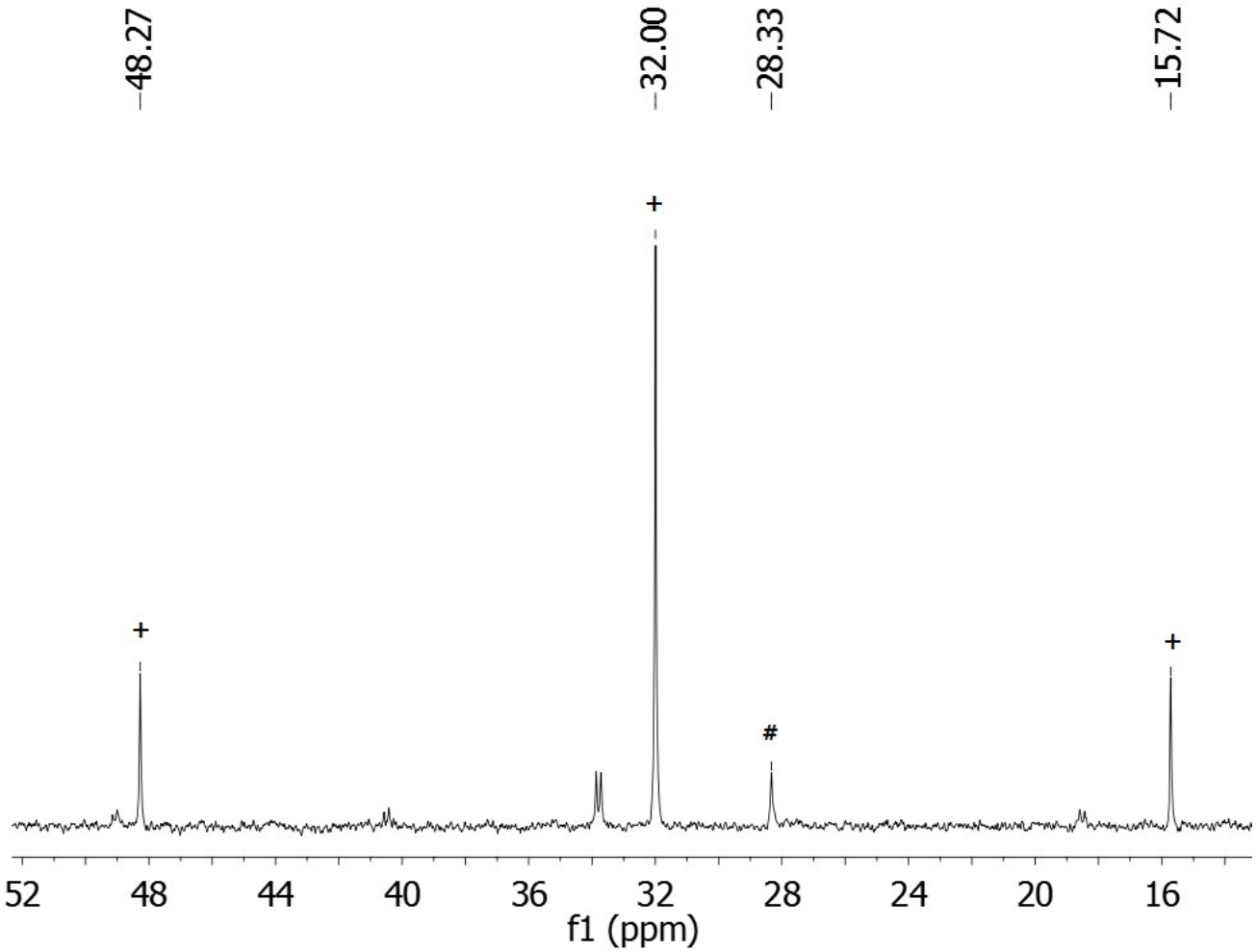

Figure S4: $^{31}P\{^{1}H\}$ NMR spectrum (C_6D_6, 121MHz) of **1b**; Each symbol is assigned to one set of signals. # $Ph_2PN(H)Ph$

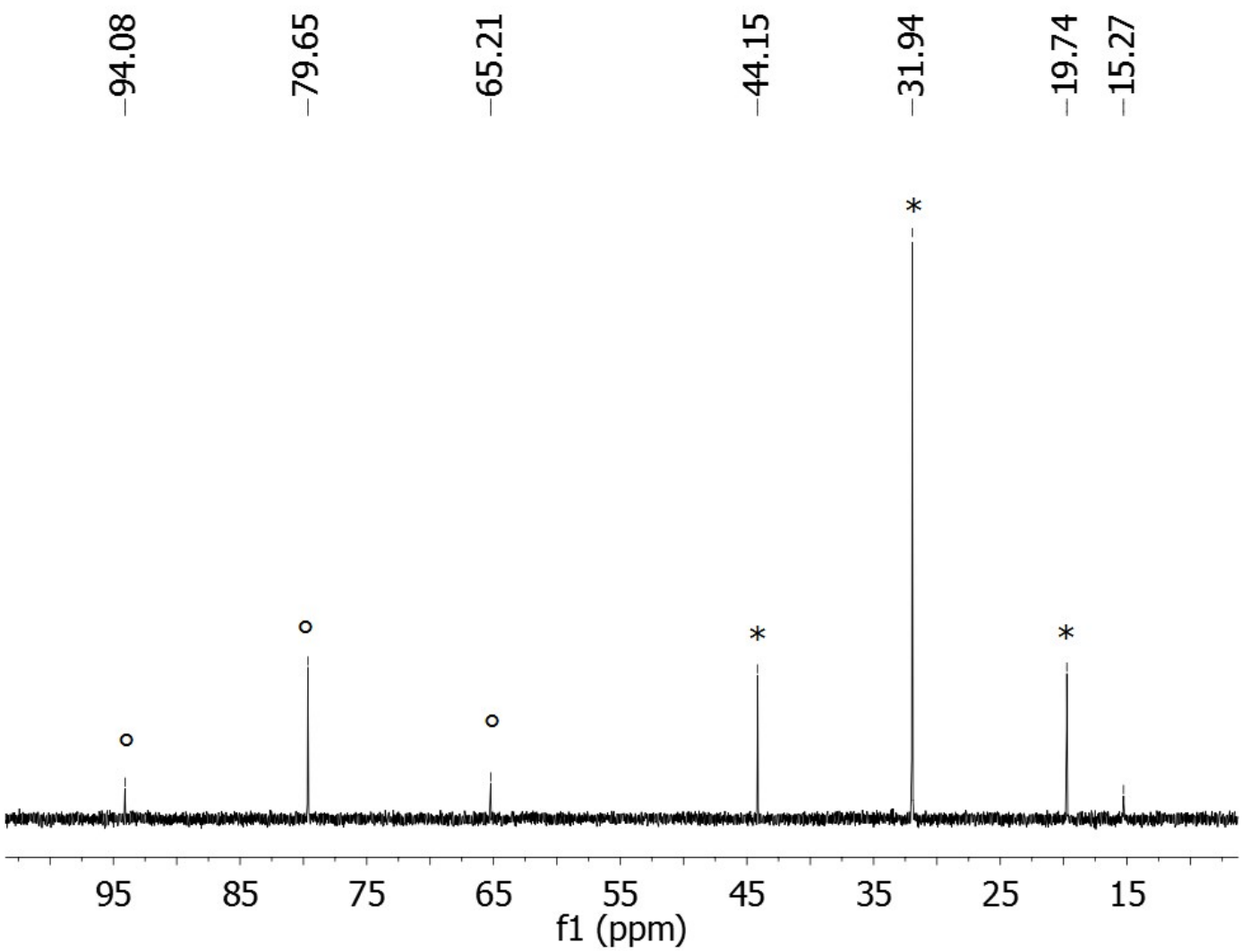

Figure S5: $^{31}P\{^{1}H\}$ NMR spectrum (C_6D_6, 121MHz) of **2a**; Each symbol is assigned to one set of signals.