SUPPORTING INFORMATION

From a PGeP Pincer-Type Germylene to Metal Complexes Featuring Chelating (Ir) and Tripodal (Ir) PGeP Germyl and Bridging (Mn_2) and Chelating (Ru) PGeP Germylene Ligands

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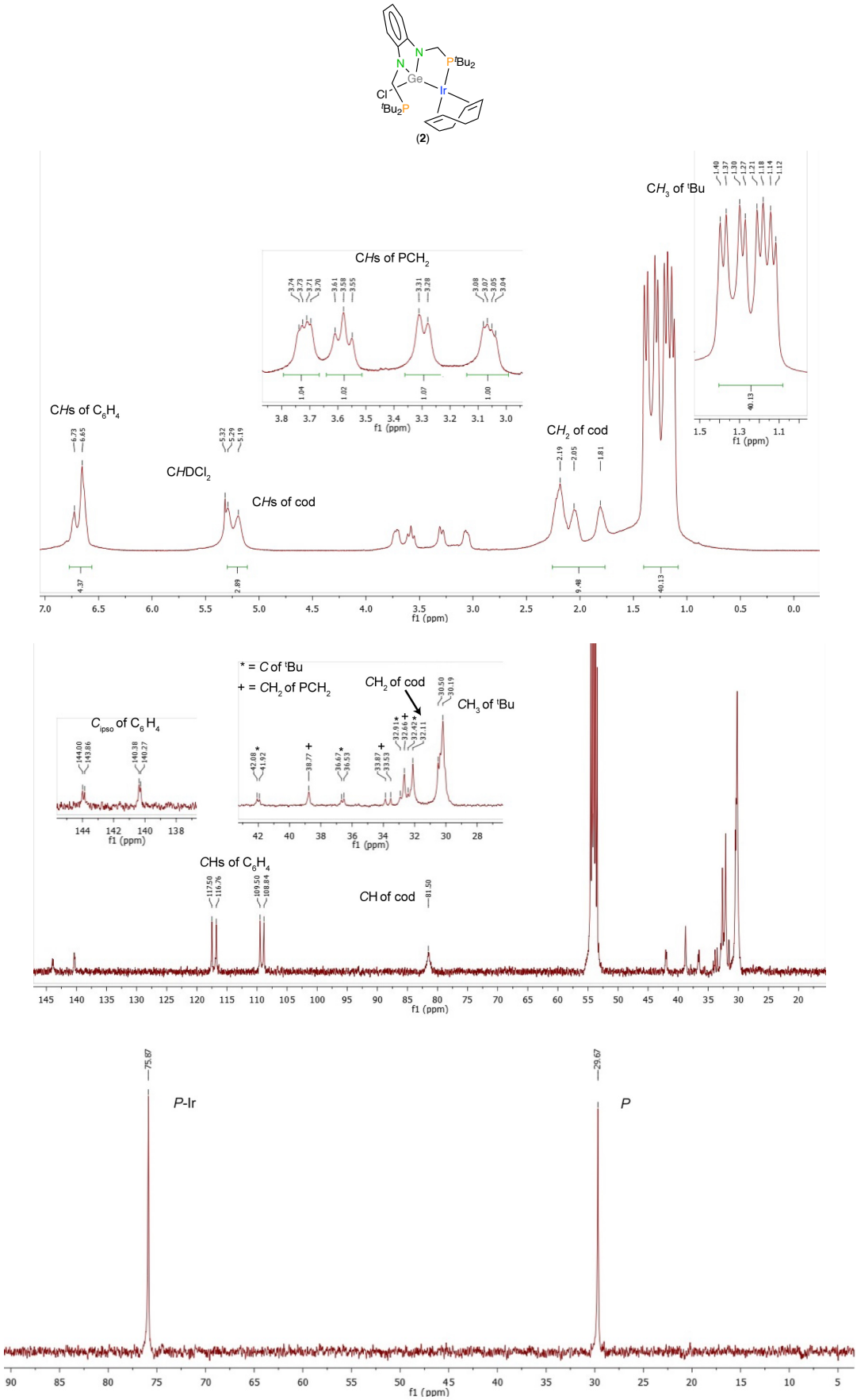

Figure S1. ^{1}H (top, 400.1 MHz), ^{13}C{^{1}H} (center, 100.6 MHz), and ^{31}P{^{1}H} (bottom, 162.0 MHz) NMR spectra (CD_2Cl_2, 293 K) of [Ir{κ^2*Ge*,*P*-GeCl(NCH$_2$P^{t}Bu$_2$)$_2$C$_6$H$_4$}(η^4-cod)] (**2**).

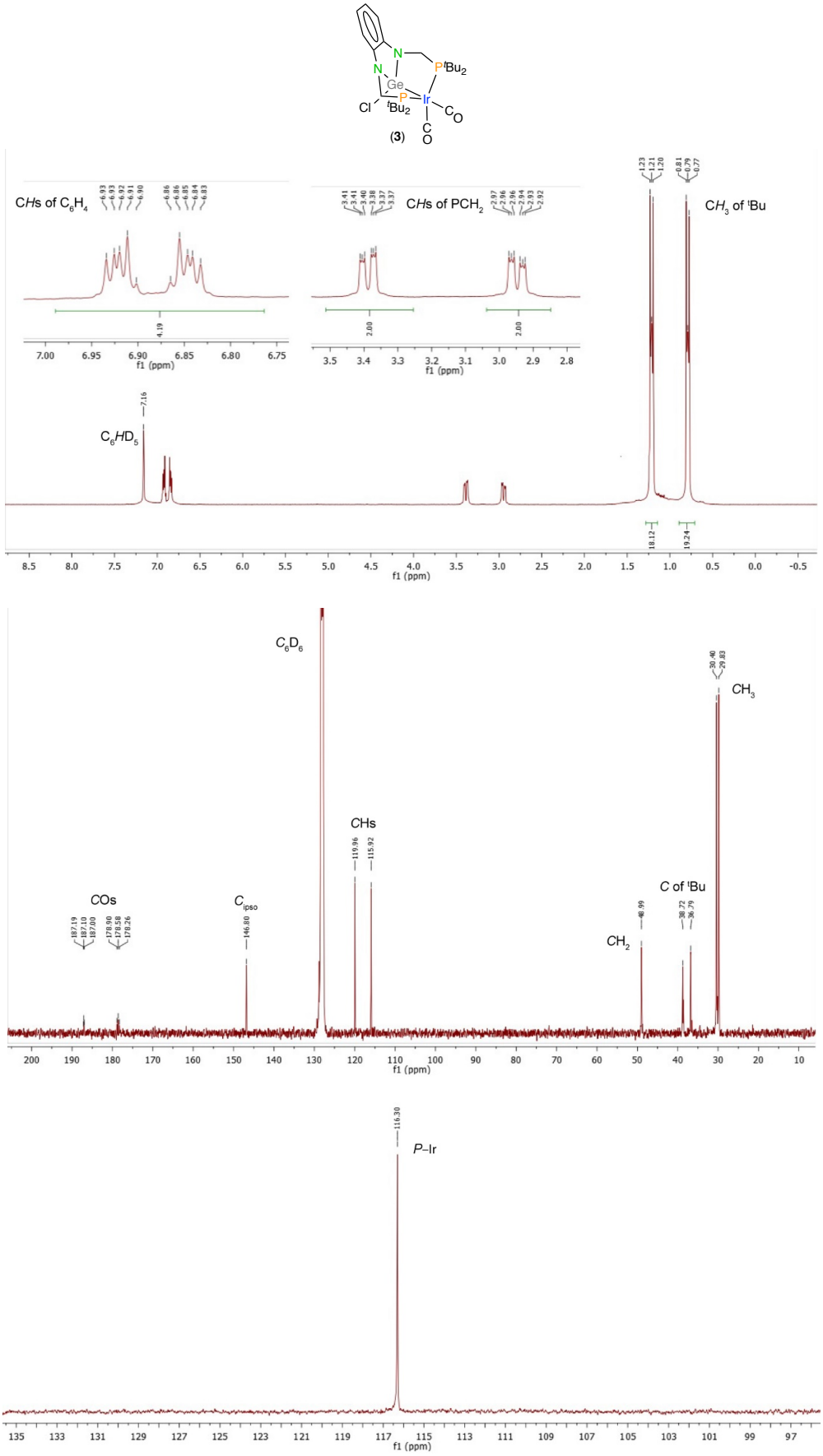

Figure S2. ^{1}H (top, 300.1 MHz), ^{13}C{^{1}H} (center, 100.6 MHz), and ^{31}P{^{1}H} (bottom, 162.0 MHz) NMR spectra (C_6D_6, 293 K) of [Ir{κ^{3}*P*,*Ge*,*P*-GeCl(NCH$_2$P^{t}Bu$_2$)$_2$C$_6$H$_4$}(CO)$_2$] (**3**).

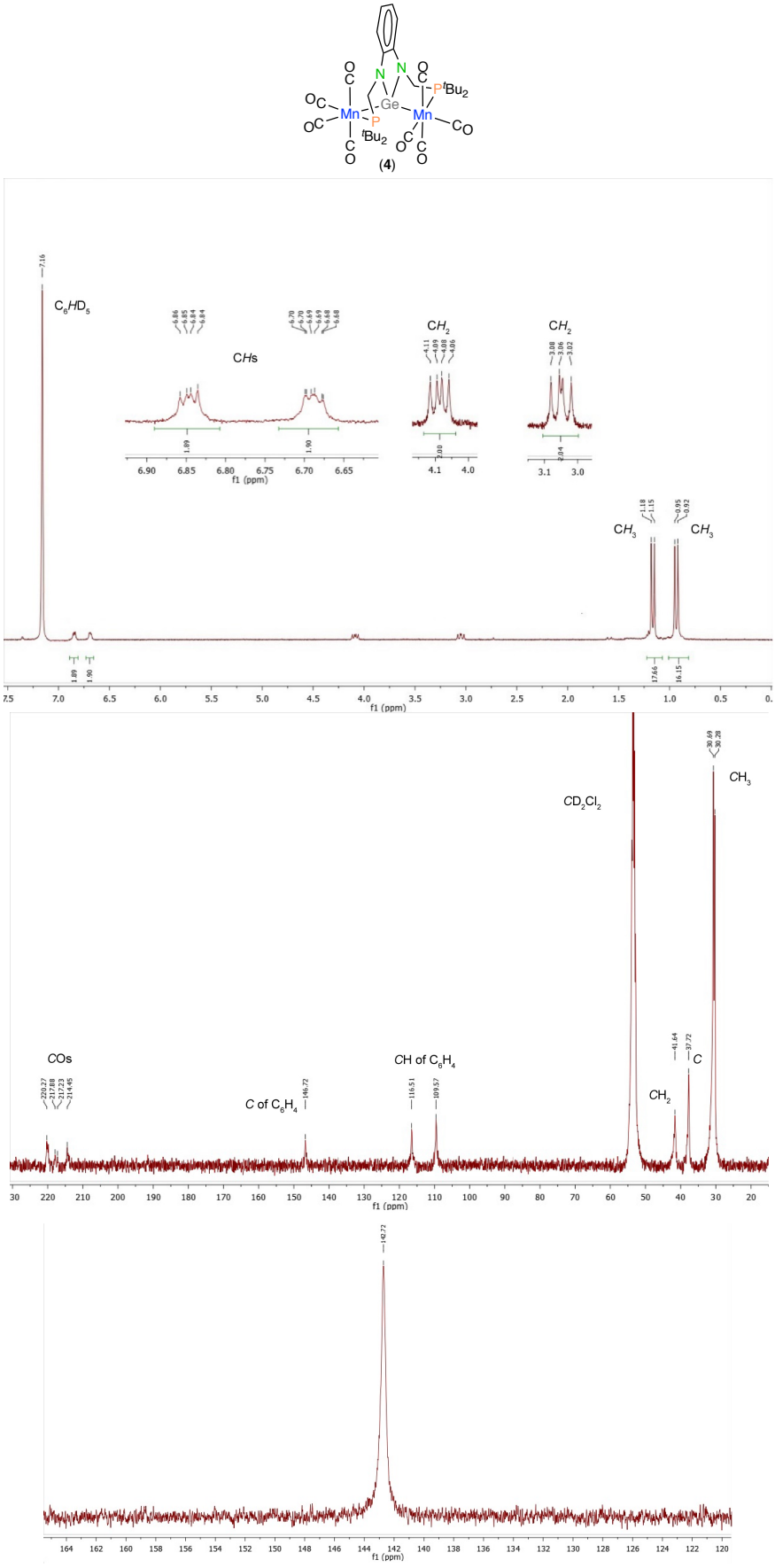

Figure S3. ^{1}H (top, 300.1 MHz, C_6D_6,), ^{13}C{^{1}H} (center, 100.6 MHz, CD_2Cl_2), and ^{31}P{^{1}H} (bottom, 162.0 MHz, CD_2Cl_2) NMR spectra (293 K) of [Mn{μ-κ^{3}*P*,*Ge*,*P*-Ge(NCH$_2$P^{t}Bu$_2$)$_2$C$_6$H$_4$}(CO)$_8$] (**4**).

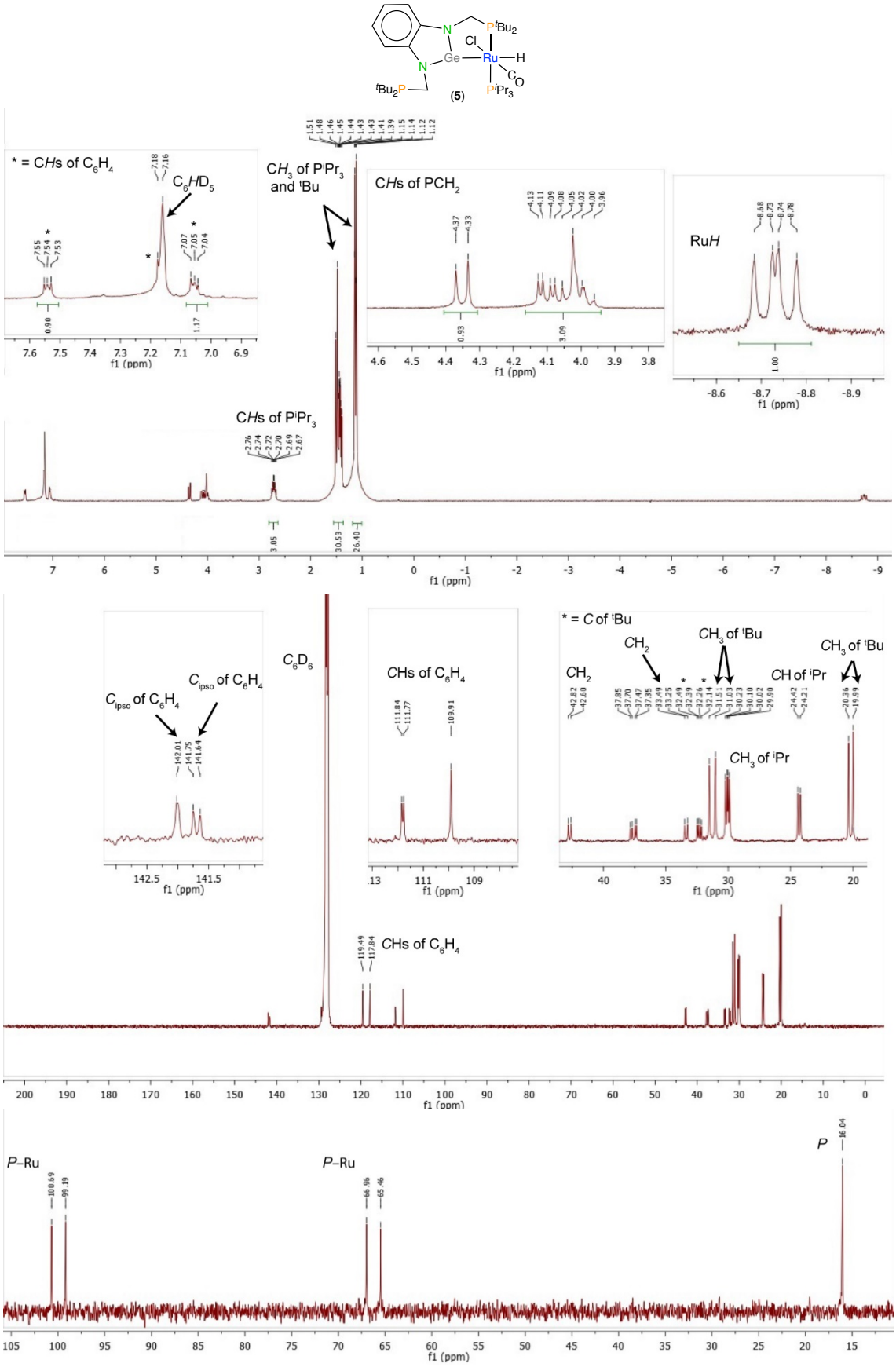

Figure S4. ^{1}H (top, 400.1 MHz), ^{13}C{^{1}H} (center, 100.6 MHz), and ^{31}P{^{1}H} (bottom, 162.0 MHz) NMR spectra (C_6D_6, 293 K) of [RuHCl(CO){κ^2*Ge*,*P*-Ge(NCH$_2$P^{t}Bu$_2$)$_2$C$_6$H$_4$}(P^{i}Pr$_3$)] (**5**).

Table S1. Crystal, Measurement, and Refinement Data for the Compounds Studied by X-Ray Diffraction

	1	**2**	**3** $(C_7H_8)_{0.75}$	**4** (C_7H_8)	**5**
formula	$C_{24}H_{44}GeN_2P_2$	$C_{32}H_{56}ClGeIrN_2P_2$	$C_{26}H_{44}ClGeIrN_2O_2P_2 \cdot (C_7H_8)_{0.75}$	$C_{32}H_{44}GeMn_2N_2O_8P_2 \cdot C_7H_8$	$C_{34}H_{66}ClGeN_2OP_3Ru$
fw	495.14	830.96	847.95	921.23	820.90
cryst syst	monoclinic	monoclinic	monoclinic	triclinic	monoclinic
space group	*C*2/c	*P*21/c	*P*21/n	*P*–1	*P*21/c
a, Å	19.373(3)	14.5267(1)	26.1512(8)	11.2224(3)	8.5316(3)
b, Å	13.288(1)	18.0079(2)	10.0811(2)	12.3774(5)	18.5242(6)
c, Å	14.152(2)	13.3482(1)	26.2975(8)	16.3412(6)	24.9795(8)
α, deg	90	90	90	98.265(3)	90
β, deg	133.29(3)	93.090(1)	90.749(3)	109.005(3)	94.748(3)
γ, deg	90	90	90	99.290(3)	90
V, Å^3	2652(1)	3486.75(5)	6932.3(3)	2070.6(1)	3934.2(2)
Z	4	4	8	2	4
F(000)	1056	1672	3388	952	1720
D_{calcd}, g cm^{-3}	1.240	1.583	1.625	1.478	1.386
μ, mm^{-1} (Cu Kα)	2.788	10.078	10.200	6.903	6.031
cryst size, mm	0.13 x 0.11 x 0.05	0.19 x 0.13 x 0.07	0.12 x 0.10 x 0.05	0.10 x 0.06 x 0.05	0.09 x 0.03 x 0.01
T, K	138(2)	150(2)	150(2)	141(2)	154(2)
θ range, deg	4.57 to 69.43	3.05 to 69.66	3.36 to 69.87	3.70 to 69.58	2.98 to 69.96
min./max. *h*, *k*, *l*	–23/18, –15/14, –17/16	–14/17, –21/21, –16/15	–31/29, –9/12, –26/31	–13/9, –15/13, –18/19	–4/10, –22/22, –30/29
no. collected reflns	5685	18914	38524	16902	18384
no. unique reflns	2372	6480	12885	7600	7228
no. reflns with $I > 2\sigma(I)$	1945	6111	11148	6879	4842
no. params/restraints	138 /0	399/6	738/67	500/0	409/0
GOF (on F^2)	1.316	1.081	1.017	1.086	1.141
R_1 (on *F*, $I > 2s(I)$)	0.042	0.021	0.037	0.037	0.058
wR_2 (on F^2, all data)	0.162	0.051	0.102	0.116	0.241
min./max. $\Delta\rho$, e Å^{-3}	–1.213/0.654	–1.025/0.673	–2.093/1.381	–0.552/1.171	–2.611/1.837
CCDC deposition no.	1829992	1829993	1829994	1829995	1829996