ELECTRONIC SUPPORTING INFORMATION

Phosphane-functionalized heavier tetrylenes: Synthesis of silylene- and germylene-decorated phosphanes and their reactions with Group 10 metal complexes

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1. NMR spectra

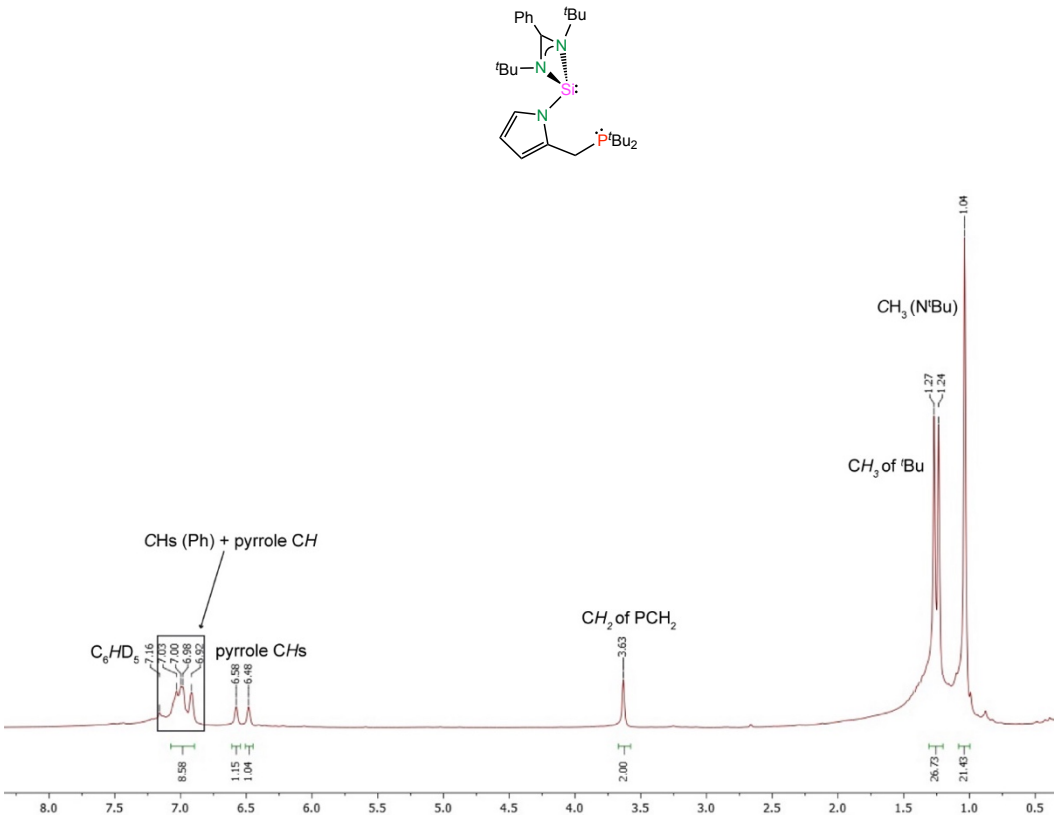


Fig. S1 ^{1}H NMR spectrum (300.1 MHz, C_6D_6, 298 K) of Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$ (**1$_{Si}$**).

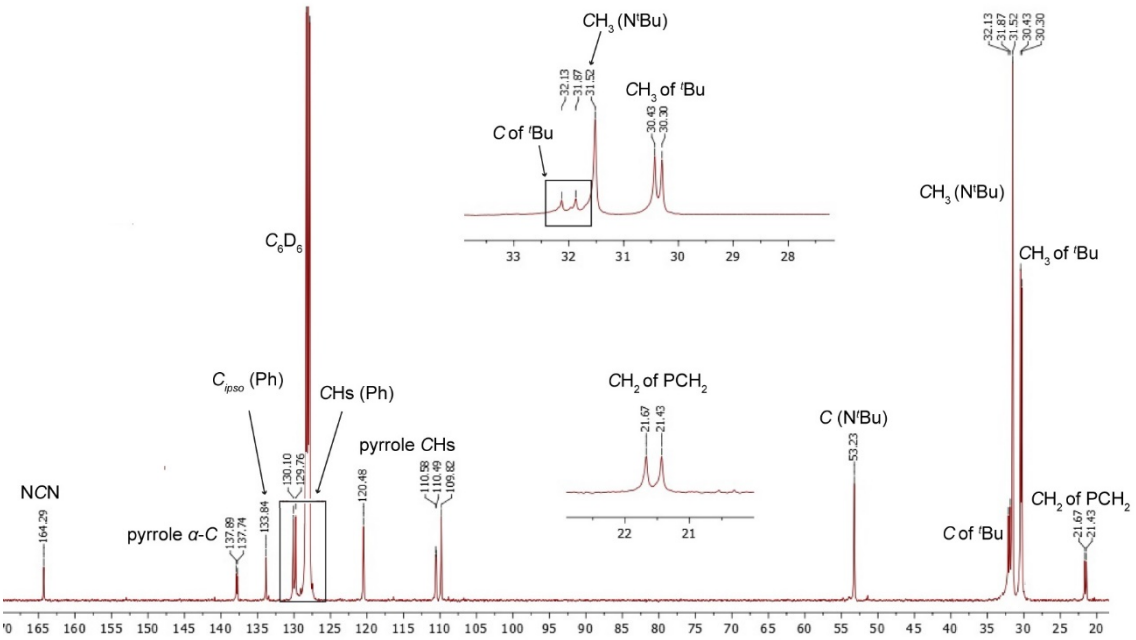


Fig. S2 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$ (**1$_{Si}$**).

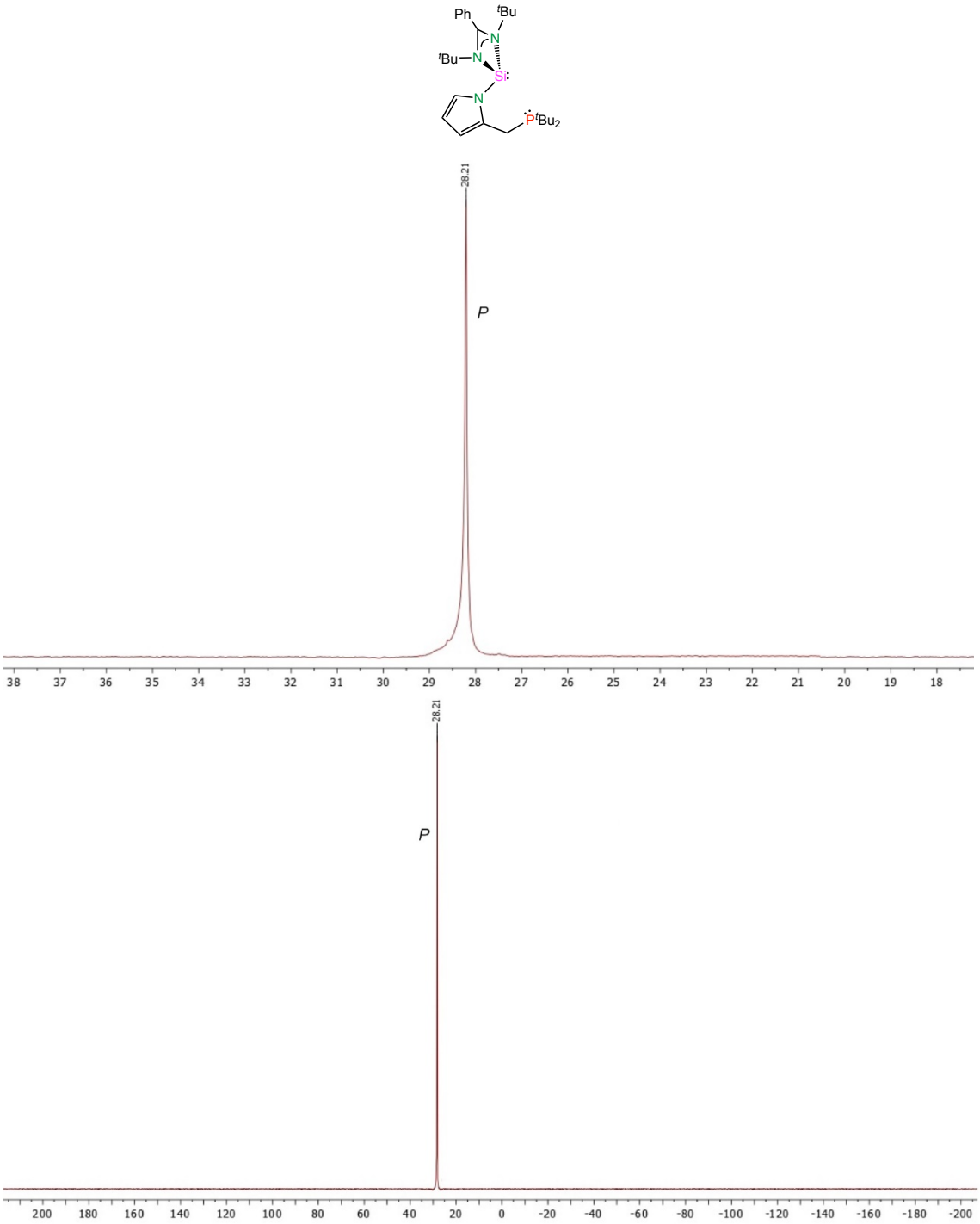


Fig. S3 $^{31}P\{^{1}H\}$ NMR spectrum (121.5 MHz, C_6D_6 298 K) of Si($^{t}Bu_2$bzam)pyrmP$^{t}Bu_2$ (**1$_{Si}$**).

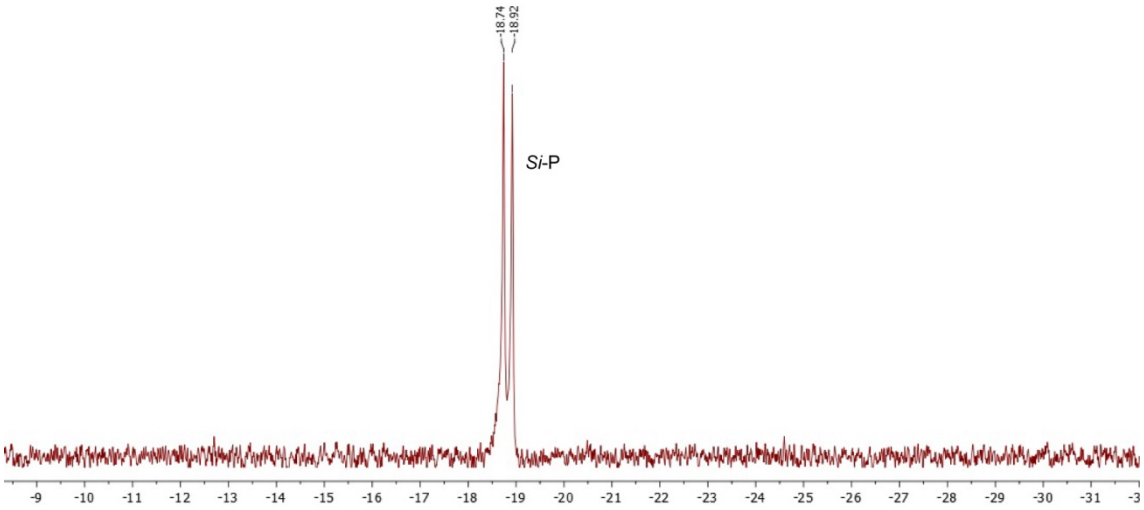


Fig. S4 $^{29}Si\{^{1}H\}$ NMR spectrum (79.5 MHz, C_6D_6 298 K) of Si($^{t}Bu_2$bzam)pyrmP$^{t}Bu_2$ (**1$_{Si}$**).

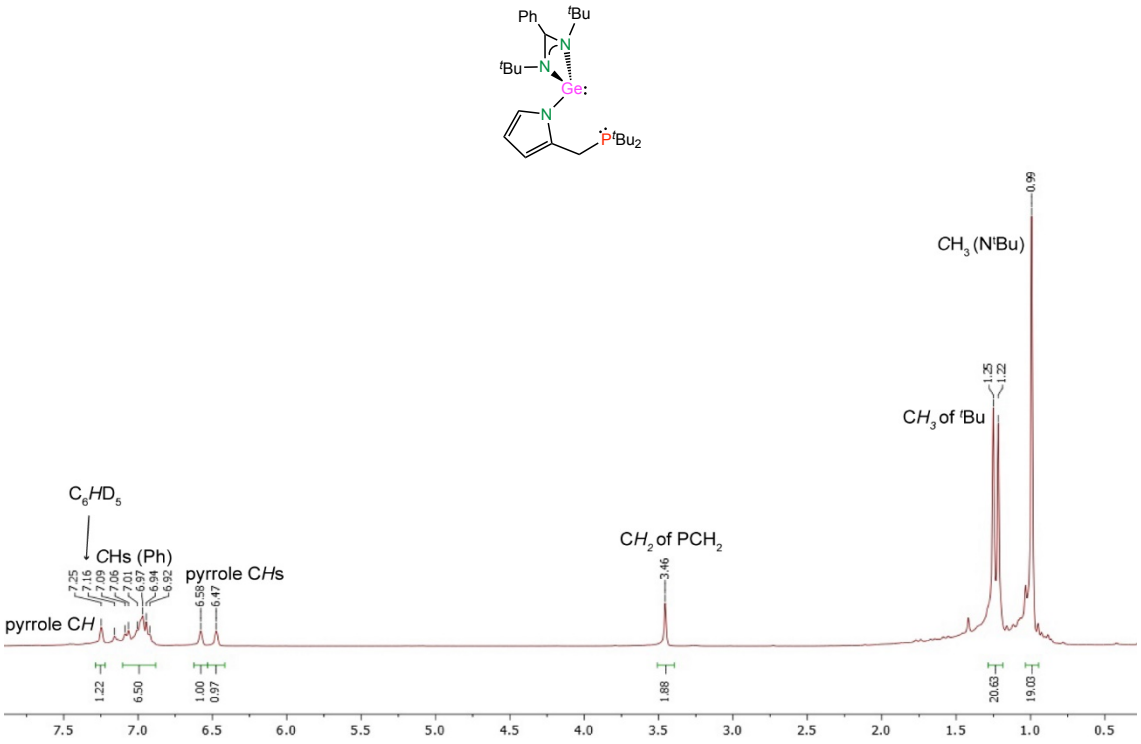


Fig. S5 ^{1}H NMR spectrum (300.1 MHz, C_6D_6, 298 K) of Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$ (**1$_{Ge}$**).

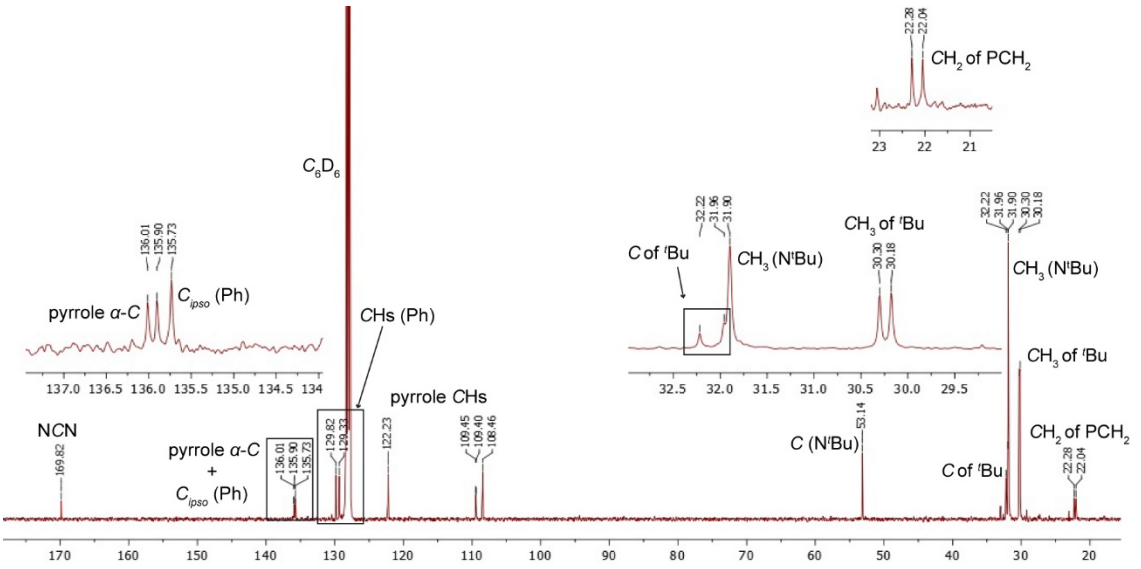


Fig. S6 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$ (**1$_{Ge}$**).

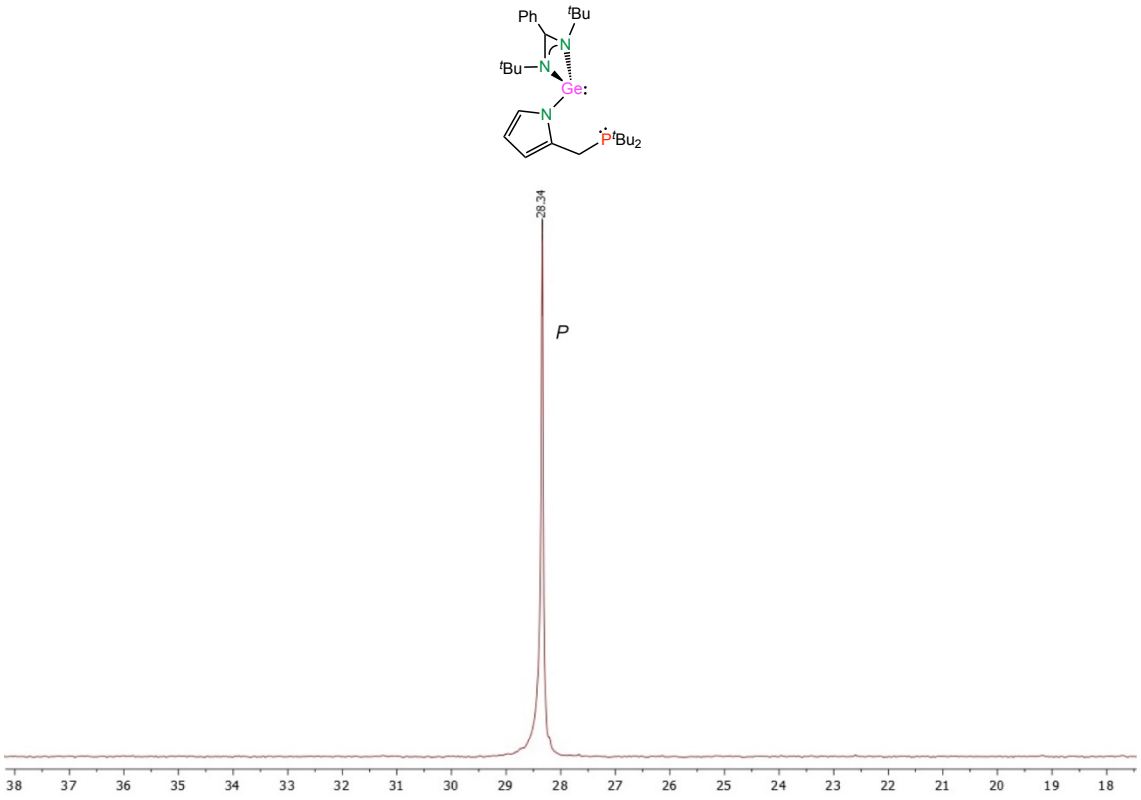


Fig. S7 $^{31}P\{^{1}H\}$NMR spectrum (121.5 MHz, C_6D_6 298 K) of Ge($^{t}Bu_2$bzam)pyrmP$^{t}Bu_2$ (**1$_{Ge}$**).

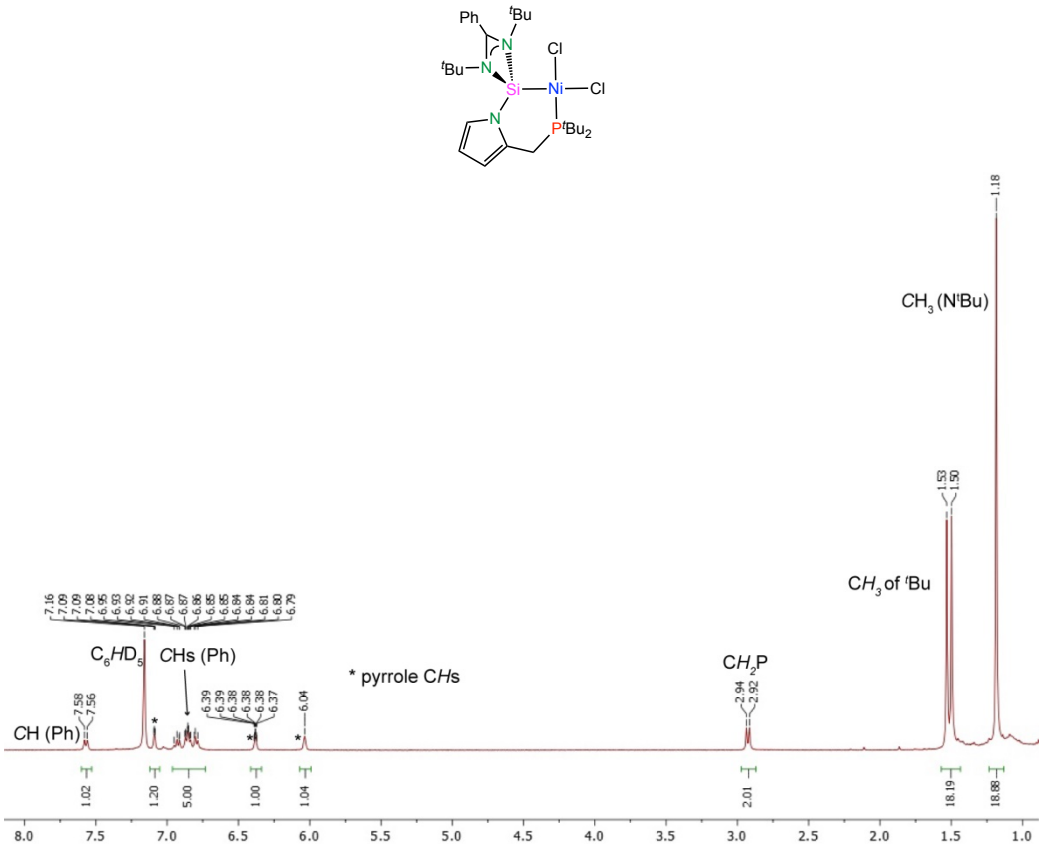


Fig. S8 ^{1}H NMR spectrum (400.5 MHz, C_6D_6, 298 K) of [$NiCl_2${κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Ni-Si}$**).

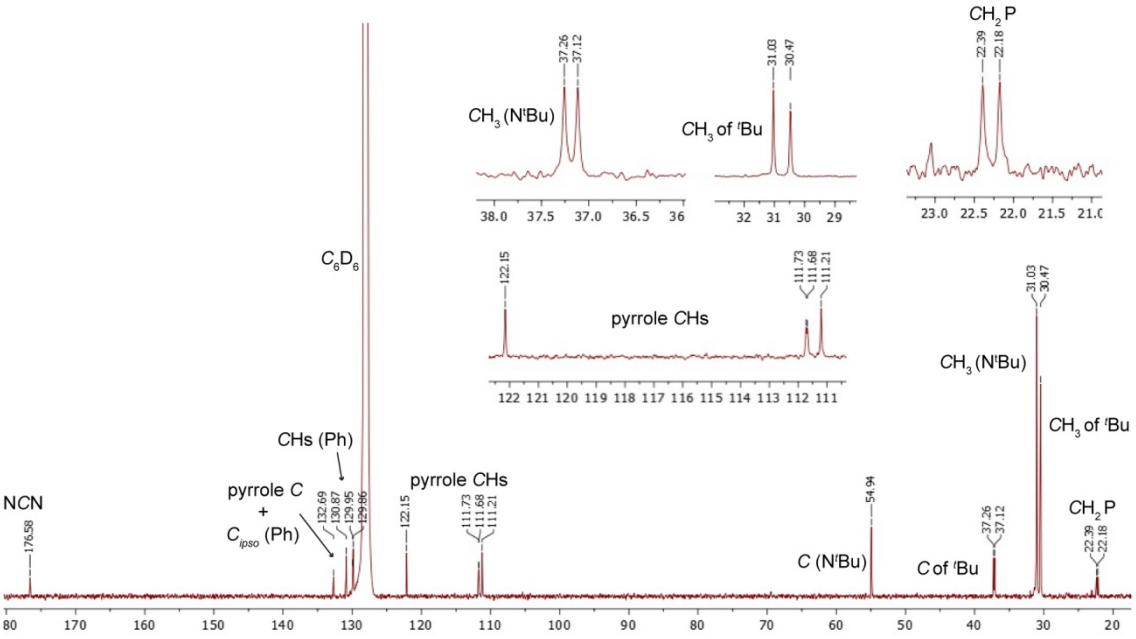


Fig. S9 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of [$NiCl_2${κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Ni-Si}$**).

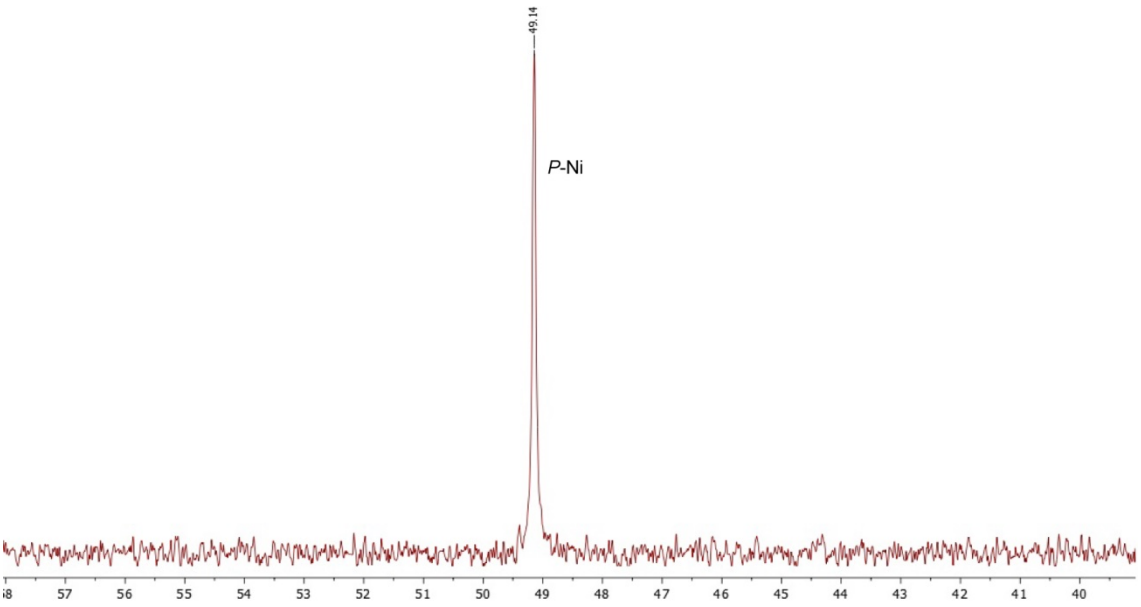


Fig. S10 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, C_6D_6, 298 K) of [$NiCl_2\{\kappa^2$*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Ni-Si}$**).

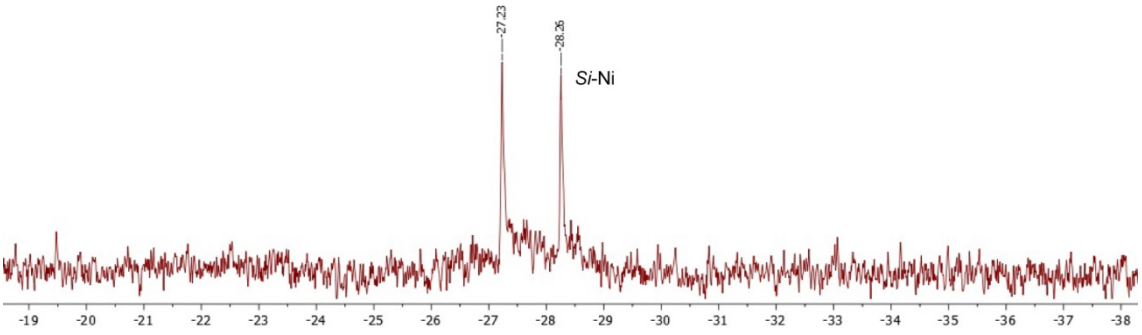


Fig. S11 $^{29}Si\{^{1}H\}$ NMR spectrum (79.5 MHz, C_6D_6, 298 K) of [$NiCl_2\{\kappa^2$*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Ni-Si}$**).

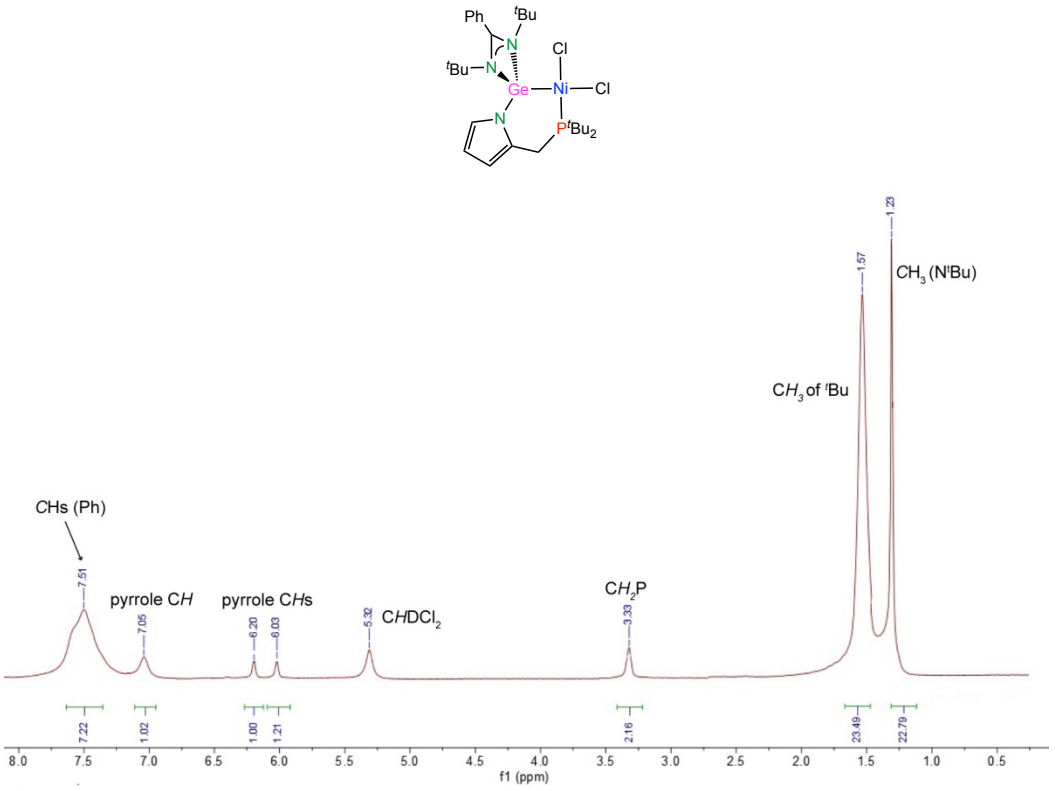


Fig. S12 ^{1}H NMR spectrum (400.5 MHz, CD_2Cl_2, 298 K) of [$NiCl_2${κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Ni-Ge}$**).

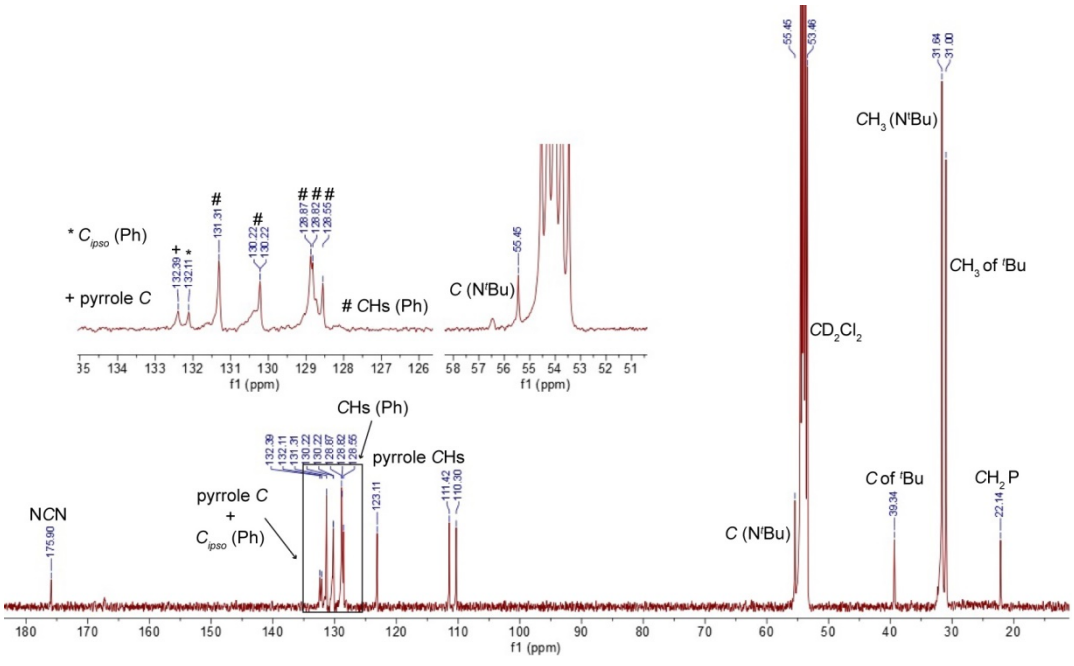


Fig. S13 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, CD_2Cl_2, 298 K) of [$NiCl_2${κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Ni-Ge}$**).

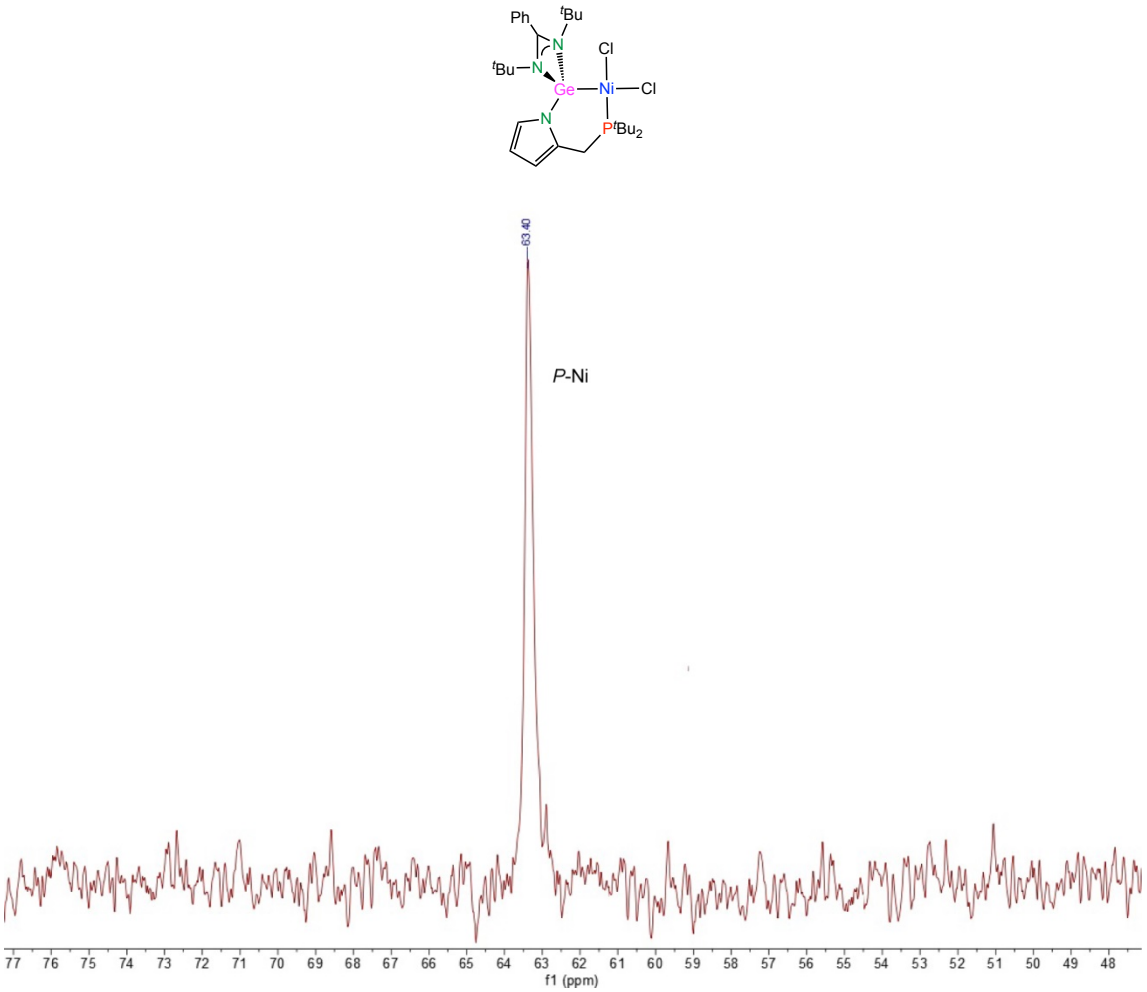


Fig. S14 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, CD_2Cl_2, 298 K) of [$NiCl_2\{\kappa^2$*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2**$_{\mathbf{Ni\text{-}Ge}}$).

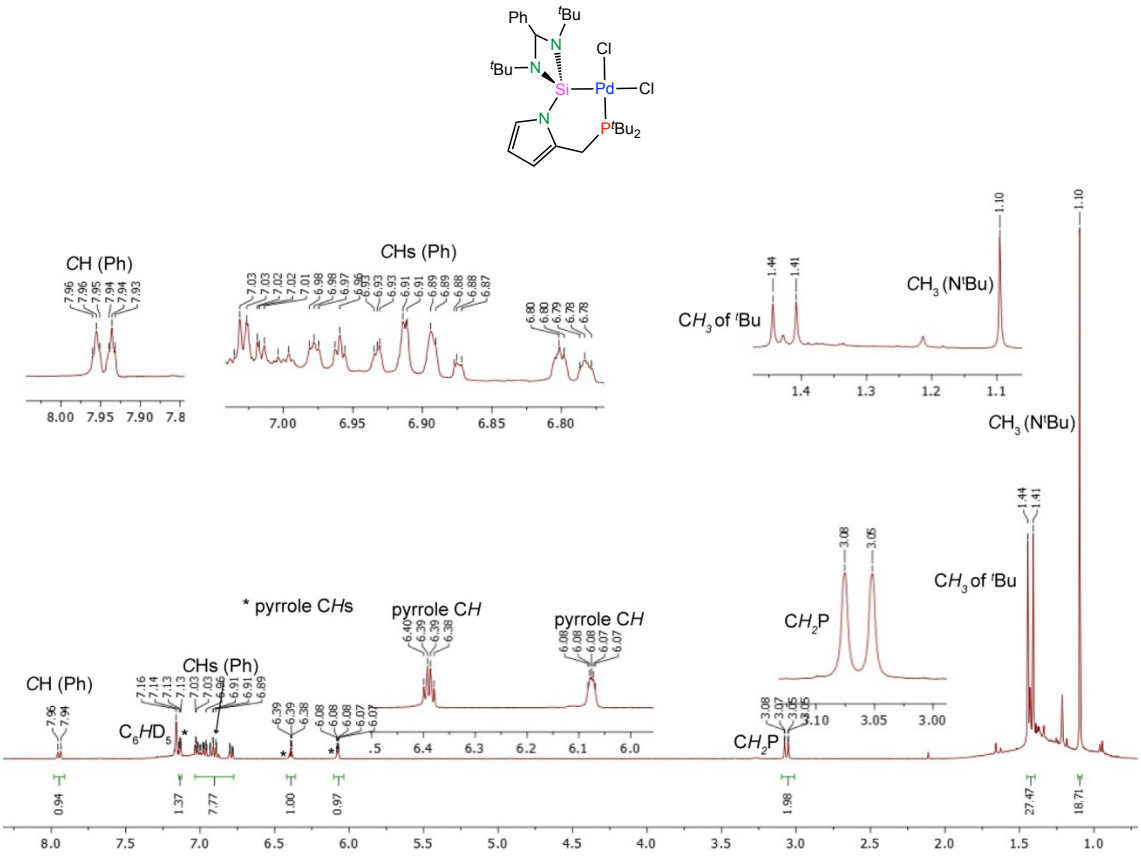


Fig. S15 ^{1}H NMR spectrum (400.5 MHz, C_6D_6, 298 K) of [$PdCl_2${κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Pd-Si}$**).

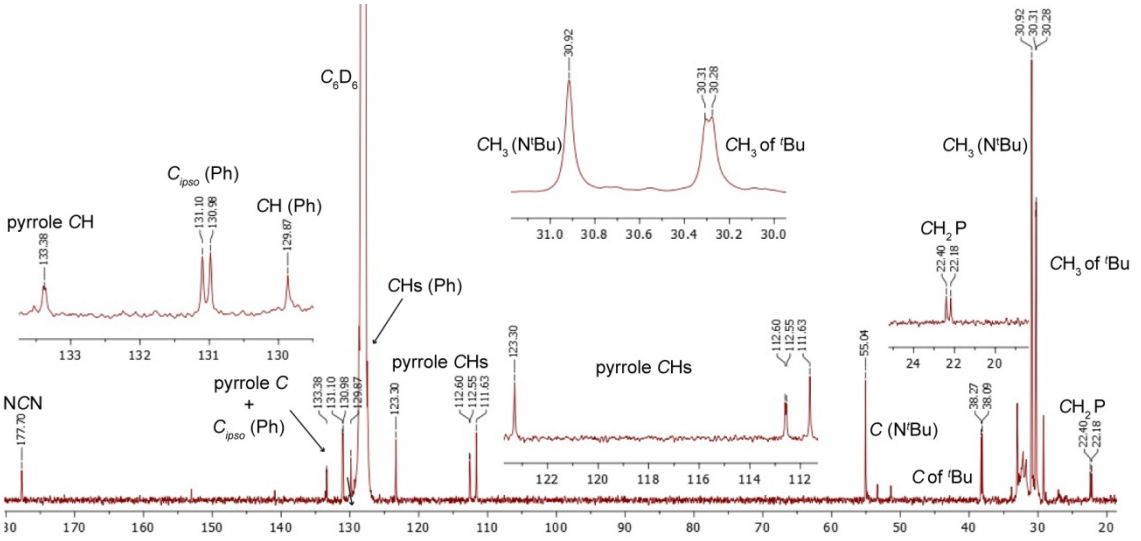


Fig. S16 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of [$PdCl_2${κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Pd-Si}$**).

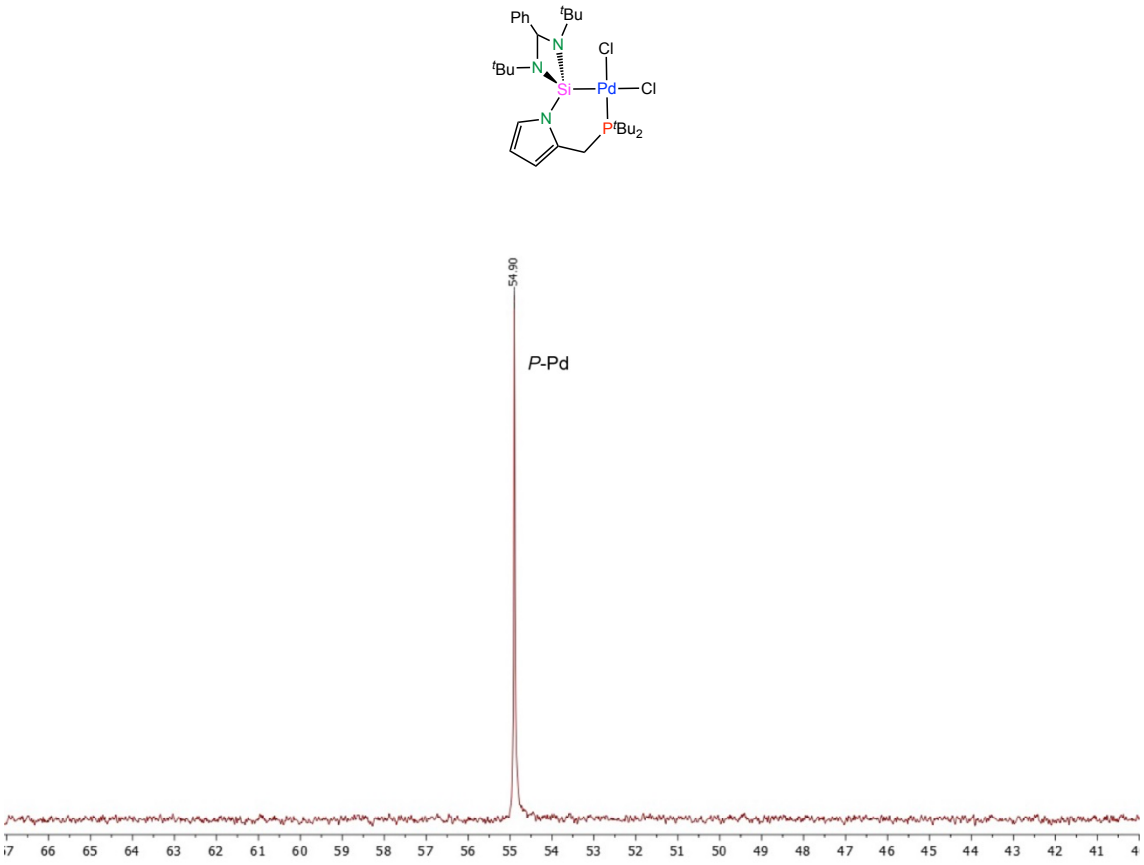


Fig. S17 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, C_6D_6, 298 K) of [$PdCl_2\{\kappa^2$*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Pd\text{-}Si}$**).

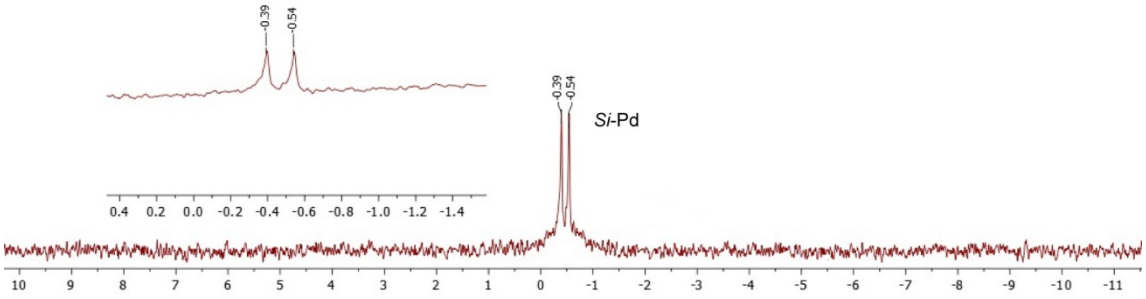


Fig. S18 $^{29}Si\{^{1}H\}$ NMR spectrum (79.5 MHz, C_6D_6, 298 K) of [$PdCl_2\{\kappa^2$*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Pd\text{-}Si}$**).

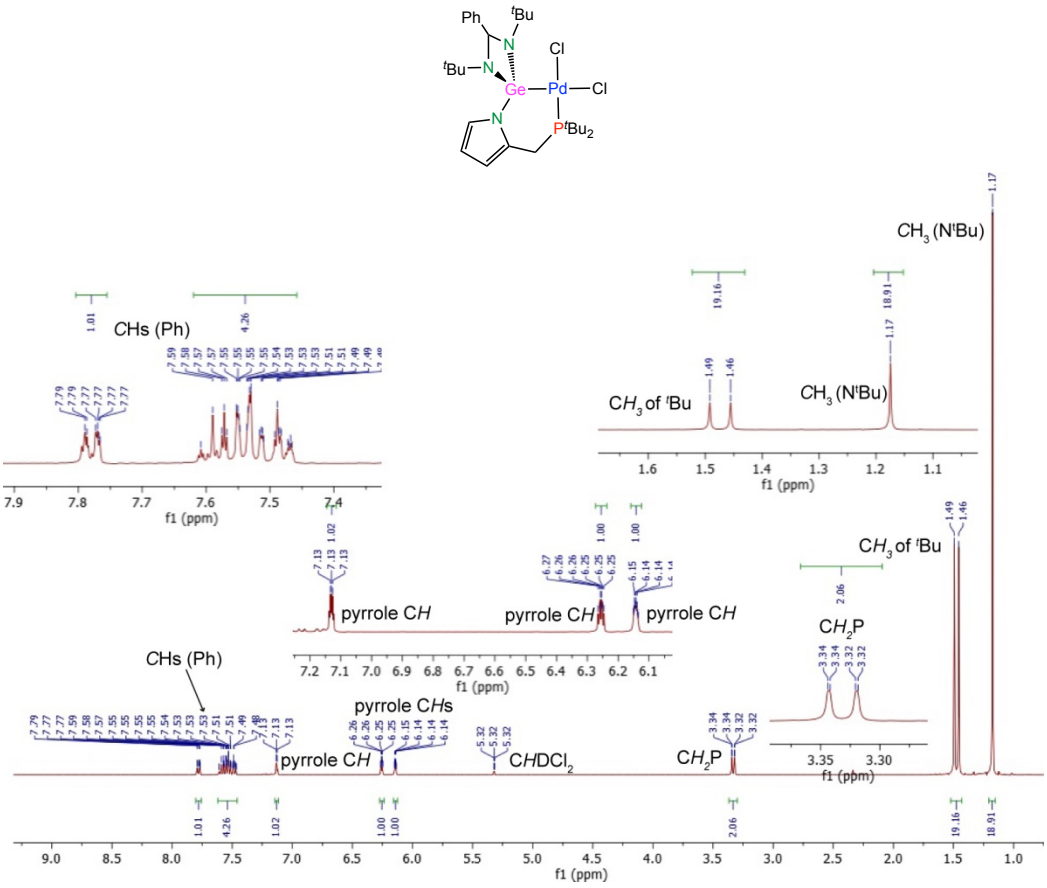


Fig. S19 ^{1}H NMR spectrum (400.5 MHz, CD_2Cl_2, 298 K) of [$PdCl_2${κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2**$_{\mathbf{Pd\text{-}Ge}}$).

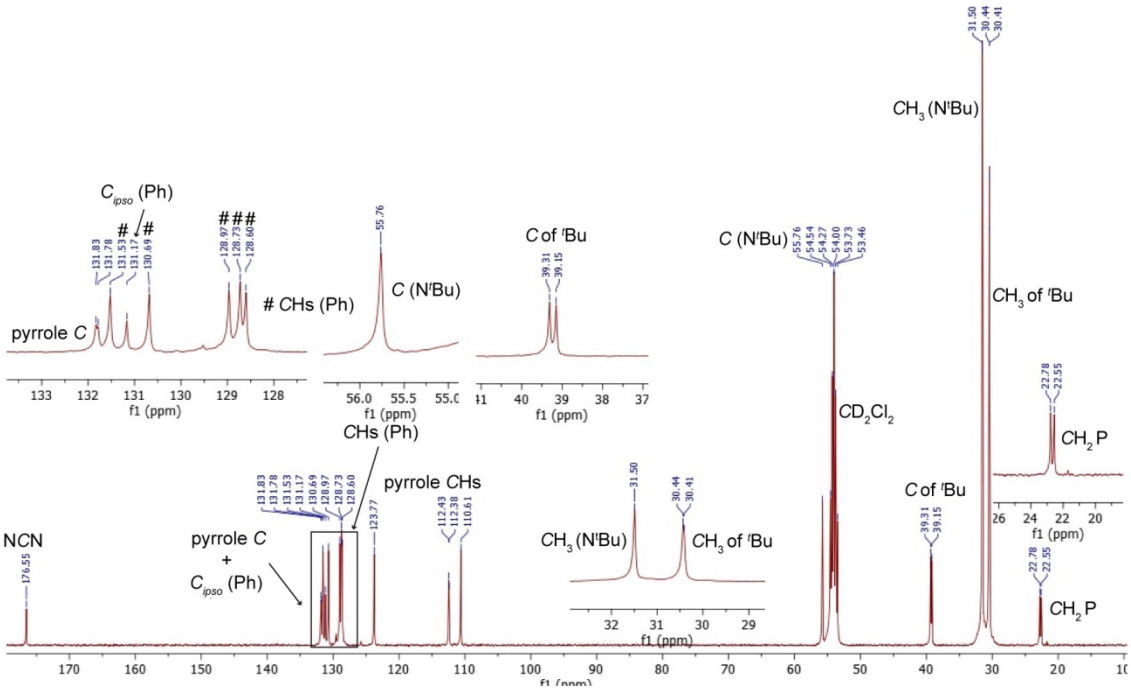


Fig. S20 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, CD_2Cl_2, 298 K) of [$PdCl_2${κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2**$_{\mathbf{Pd\text{-}Ge}}$).

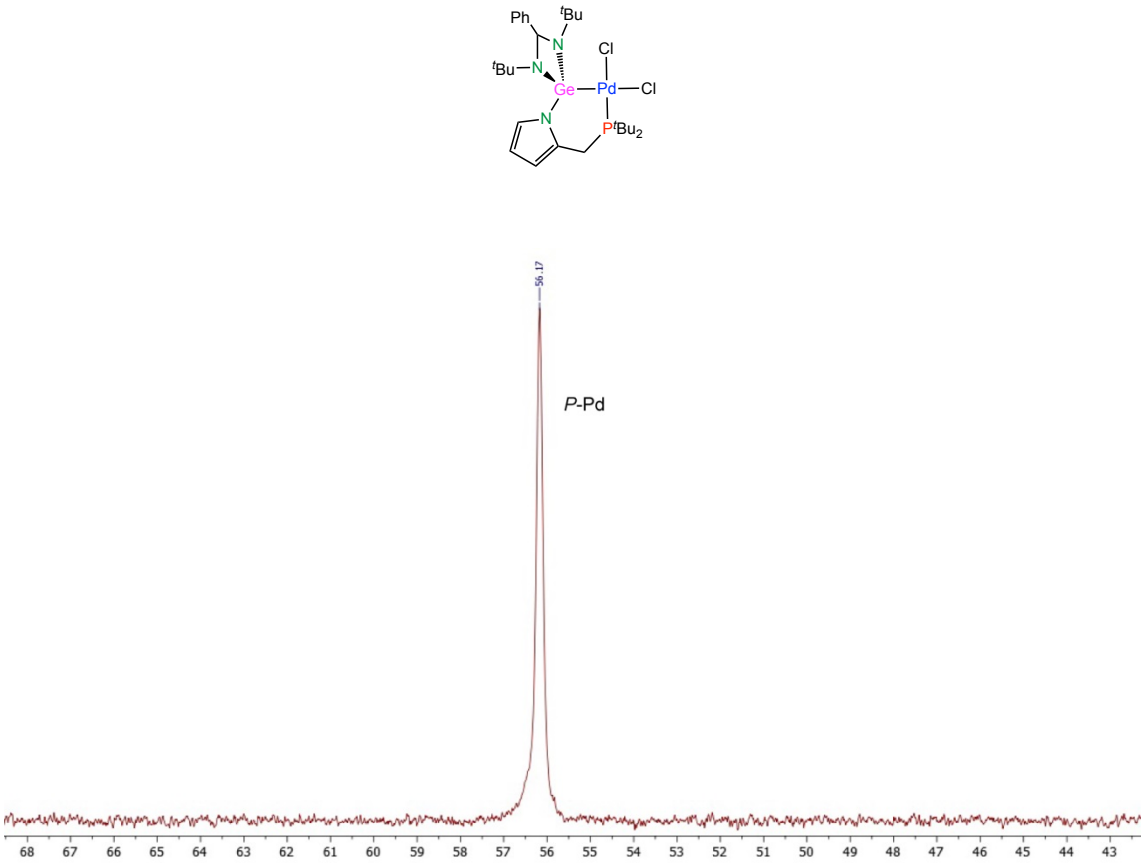


Fig. S21 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, CD_2Cl_2, 298 K) of [$PdCl_2${κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2**$_{\textbf{Pd-Ge}}$).

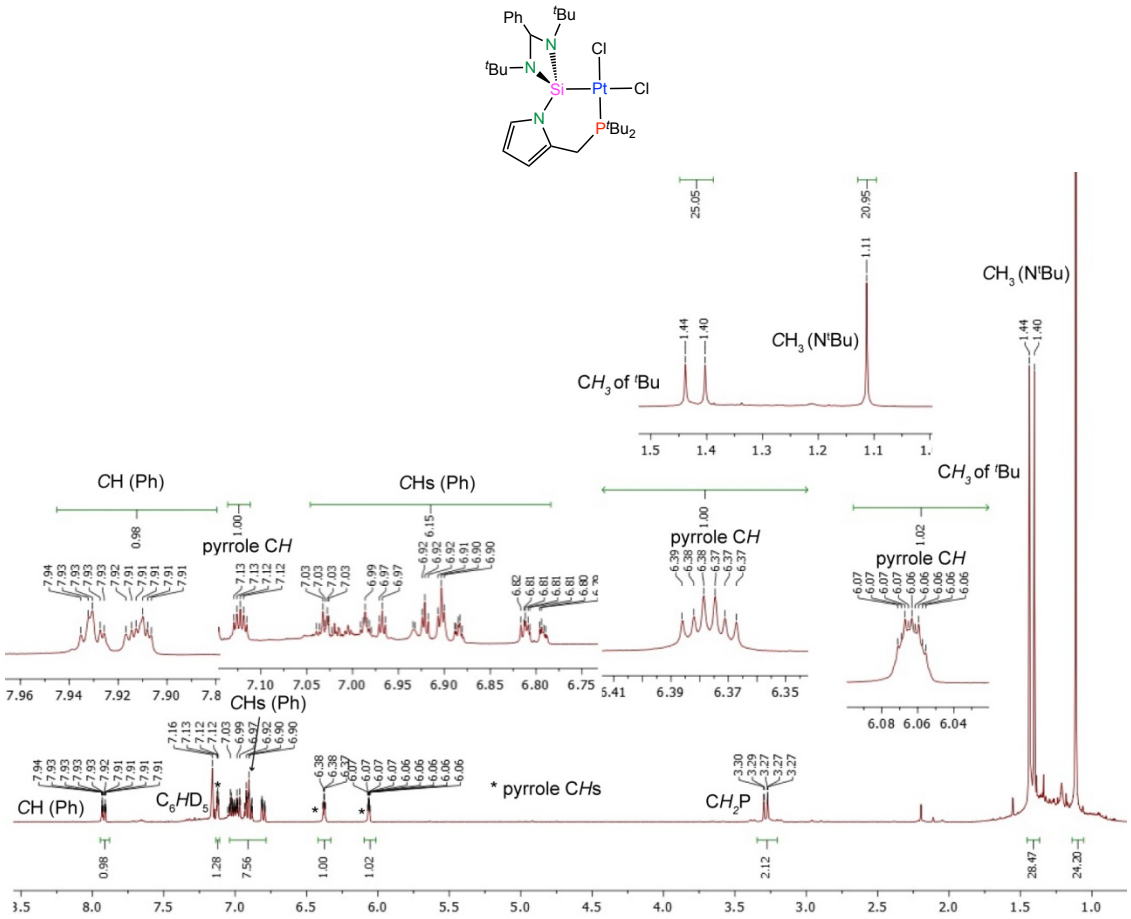


Fig. S22 ^{1}H NMR spectrum (400.5 MHz, C_6D_6, 298 K) of [$PtCl_2${κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Pt-Si}$**).

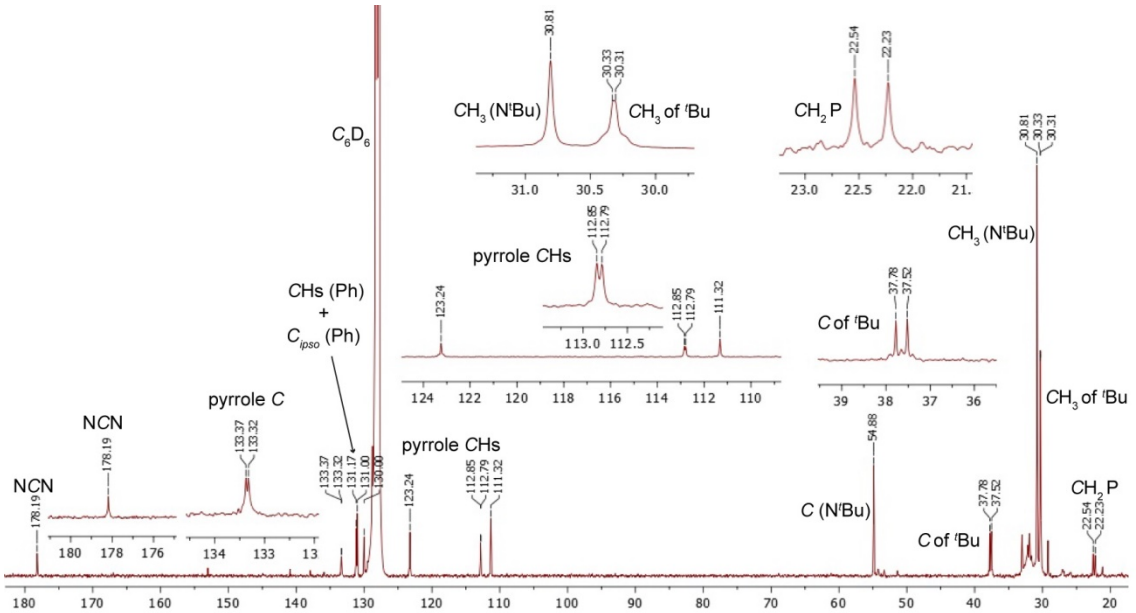


Fig. S23 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of [$PtCl_2${κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Pt-Si}$**).

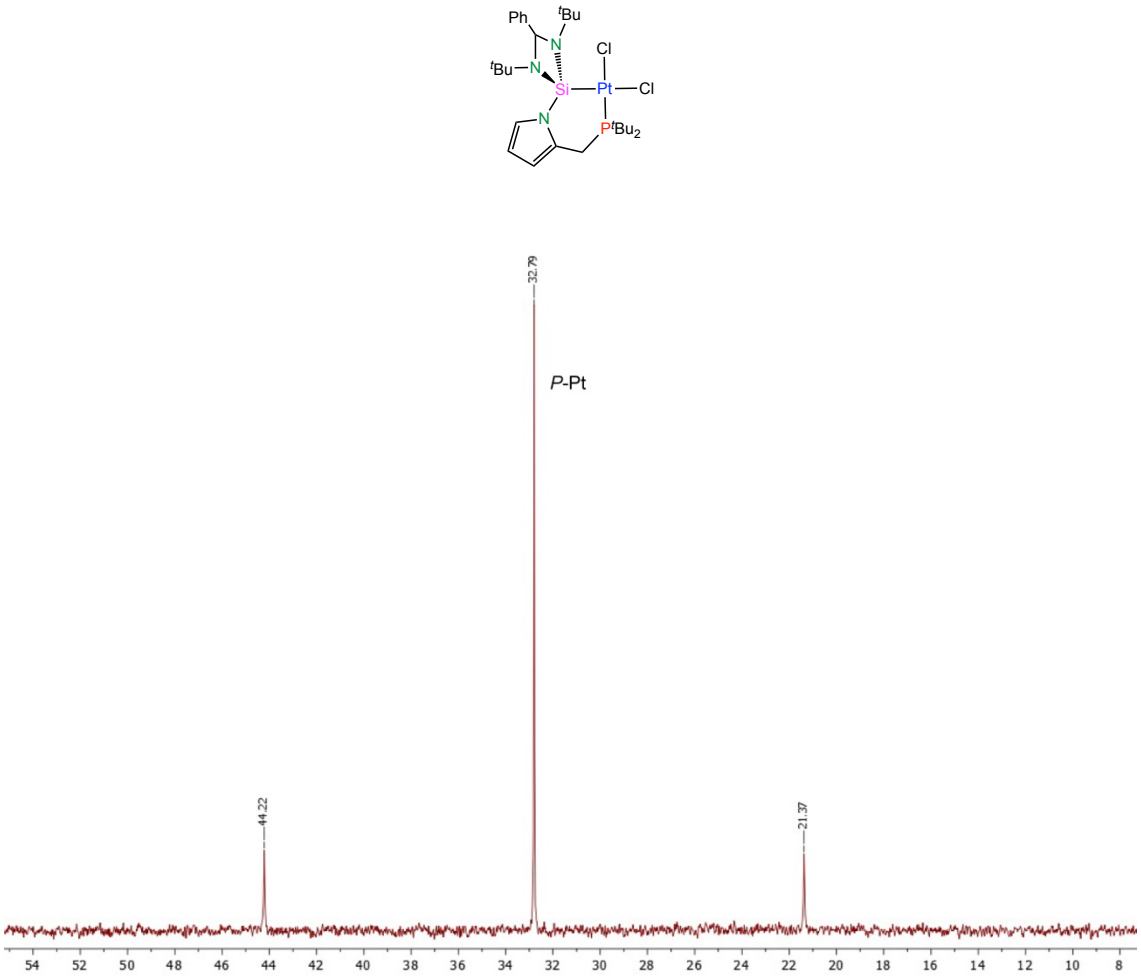


Fig. S24 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, C_6D_6, 298 K) of [$PtCl_2$\{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$\}] (**2$_{Pt-Si}$**).

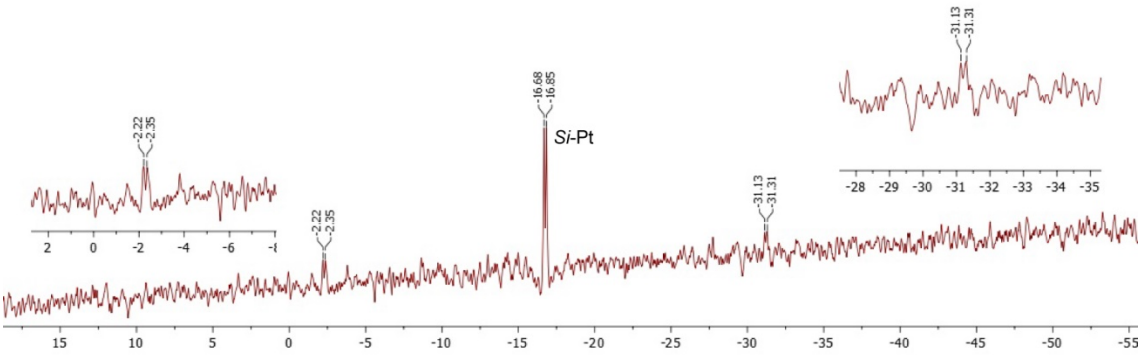


Fig. S25 $^{29}Si\{^{1}H\}$ NMR spectrum (79.5 MHz, C_6D_6, 298 K) of [$PtCl_2$\{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$\}] (**2$_{Pt-Si}$**).

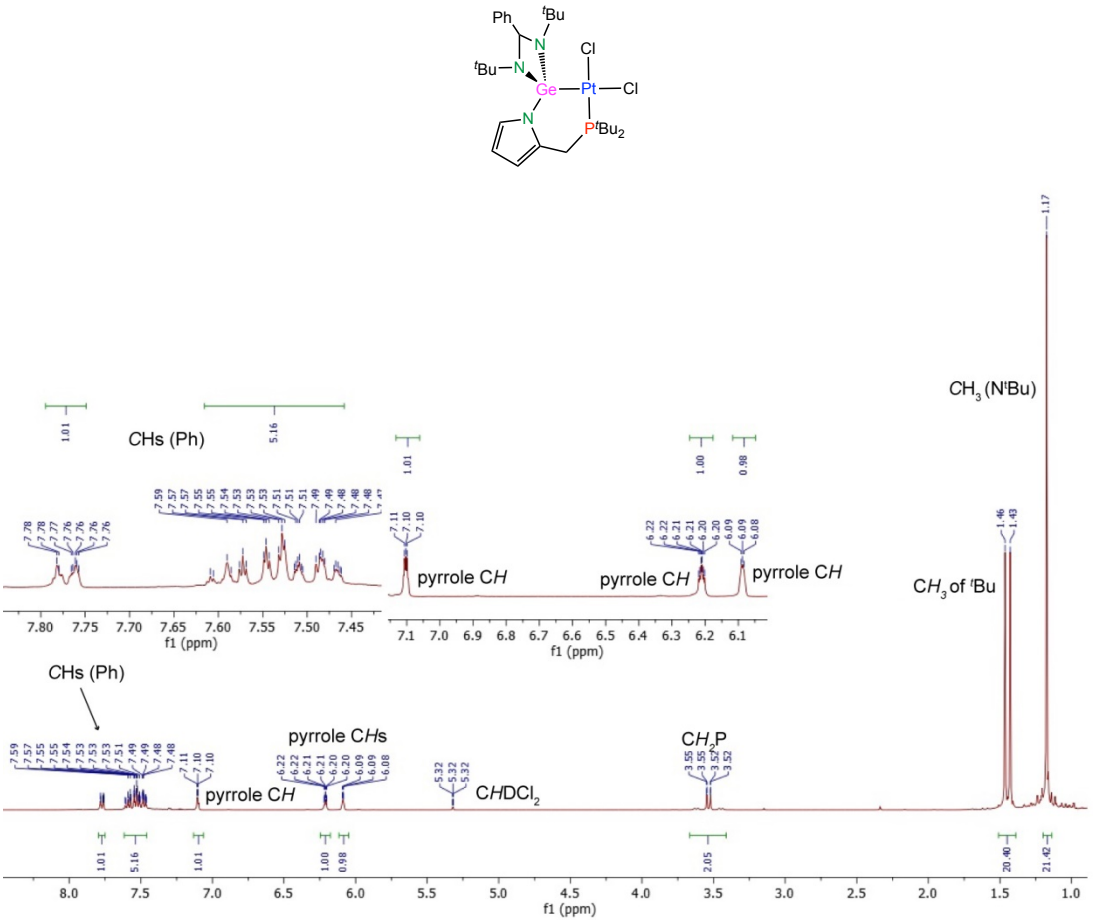


Fig. S26 ^{1}H NMR spectrum (400.5 MHz, CD_2Cl_2, 298 K) of [$PtCl_2${κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Pt-Ge}$**).

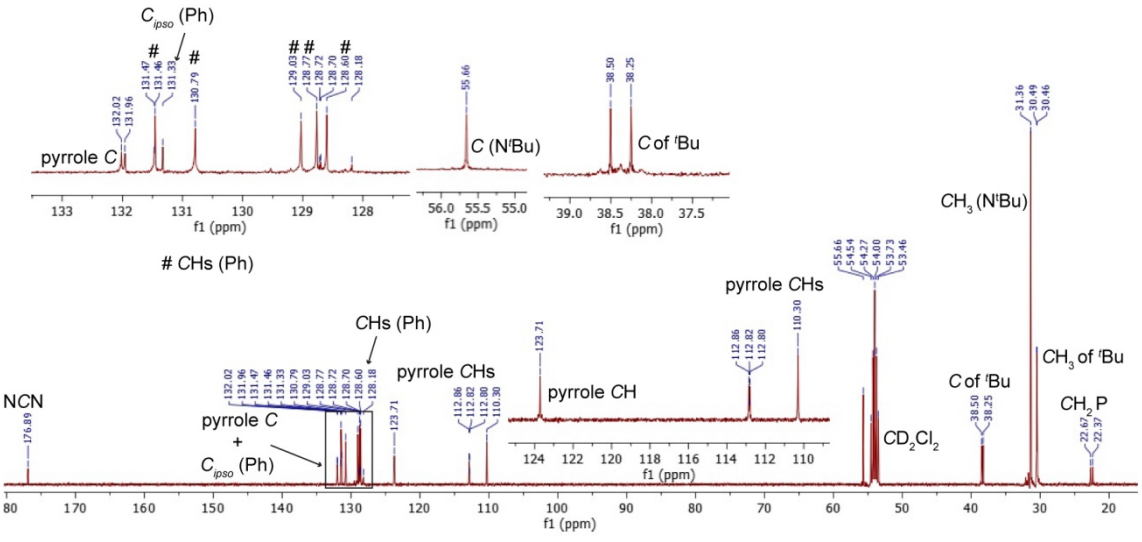


Fig. S27 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, CD_2Cl_2, 298 K) of [$PtCl_2${κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2$_{Pt-Ge}$**).

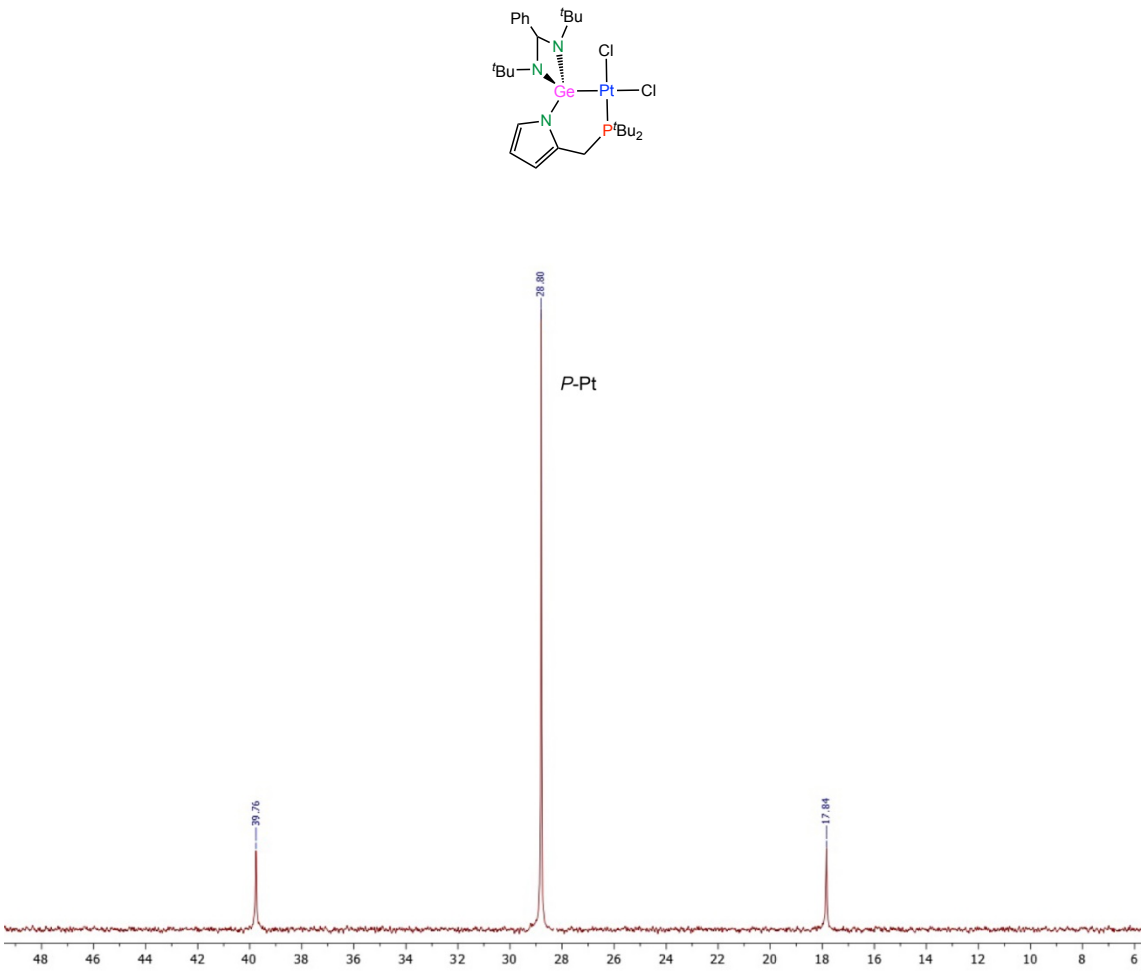


Fig. S28 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, CD_2Cl_2, 298 K) of [$PtCl_2\{\kappa^2$*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}] (**2**$_{Pt\text{-}Ge}$).

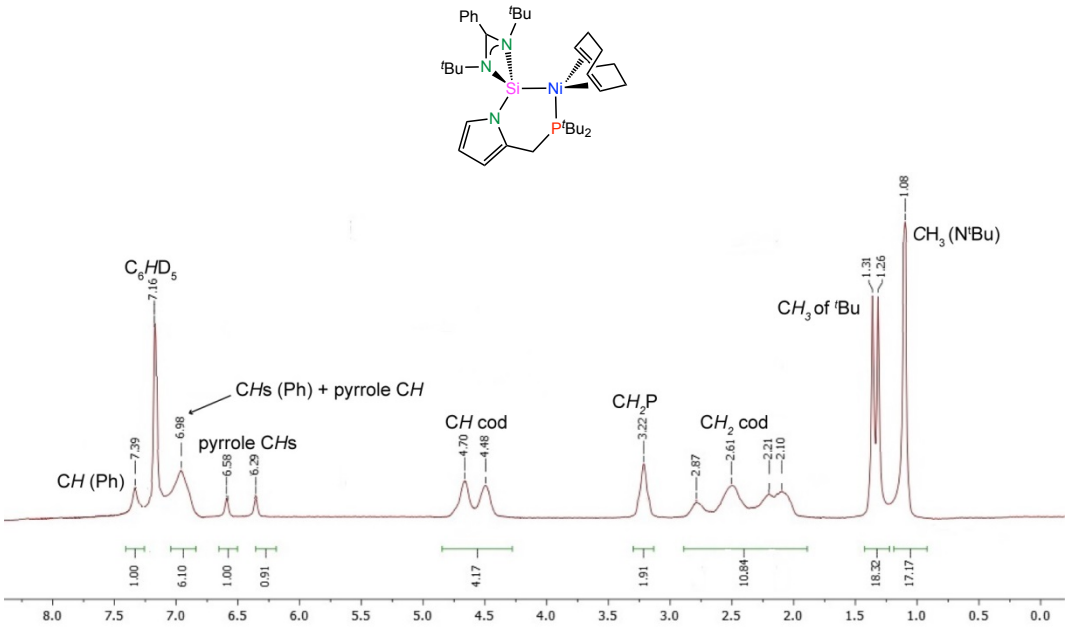


Fig. S29 ^{1}H NMR spectrum (300.1 MHz, C_6D_6, 298 K) of [Ni{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(cod)] (**3$_{Ni-Si}$**).

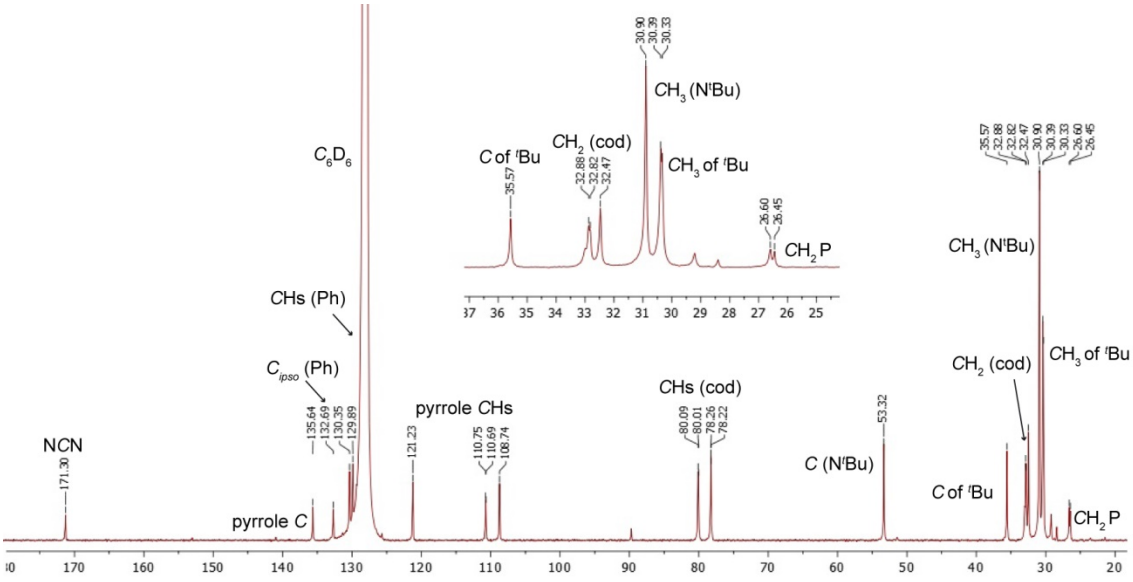


Fig. S30 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of [Ni{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(cod)] (**3$_{Ni-Si}$**).

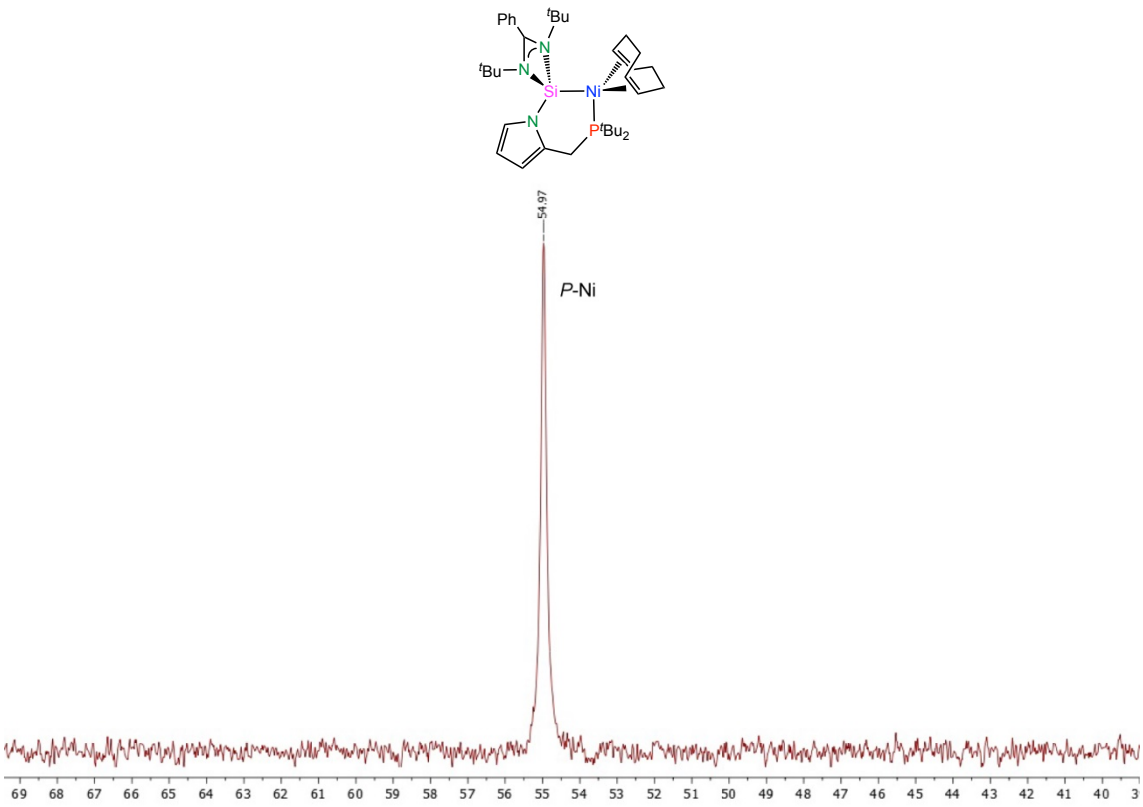


Fig. S31 $^{31}P\{^{1}H\}$ NMR spectrum (121.5 MHz, C_6D_6, 298 K) of [Ni{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(cod)] (**3$_{Ni-Si}$**).

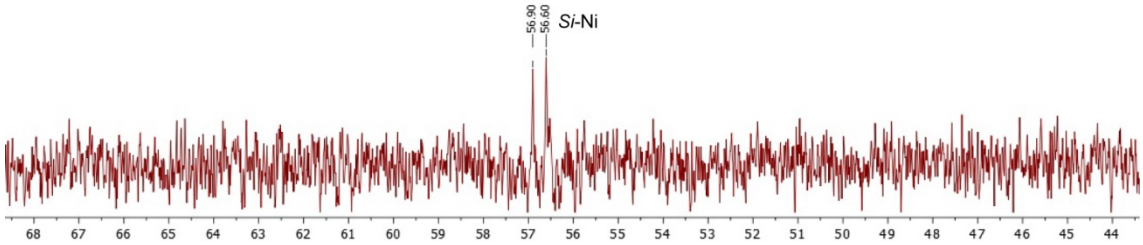


Fig. S32 $^{29}Si\{^{1}H\}$ NMR spectrum (79.5 MHz, C_6D_6, 298 K) of [Ni{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(cod)] (**3$_{Ni-Si}$**).

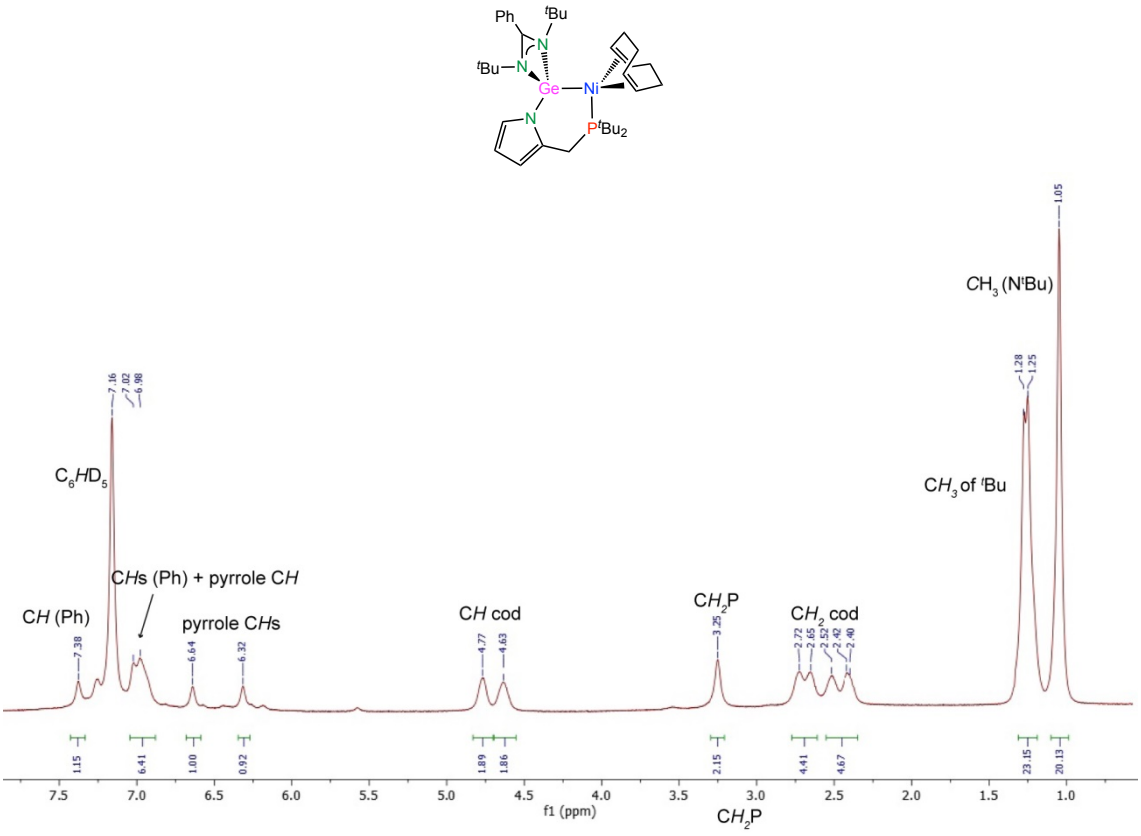


Fig. S33 ^{1}H NMR spectrum (400.5 MHz, C_6D_6, 298 K) of [Ni{κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(cod)] (**3$_{Ni-Ge}$**).

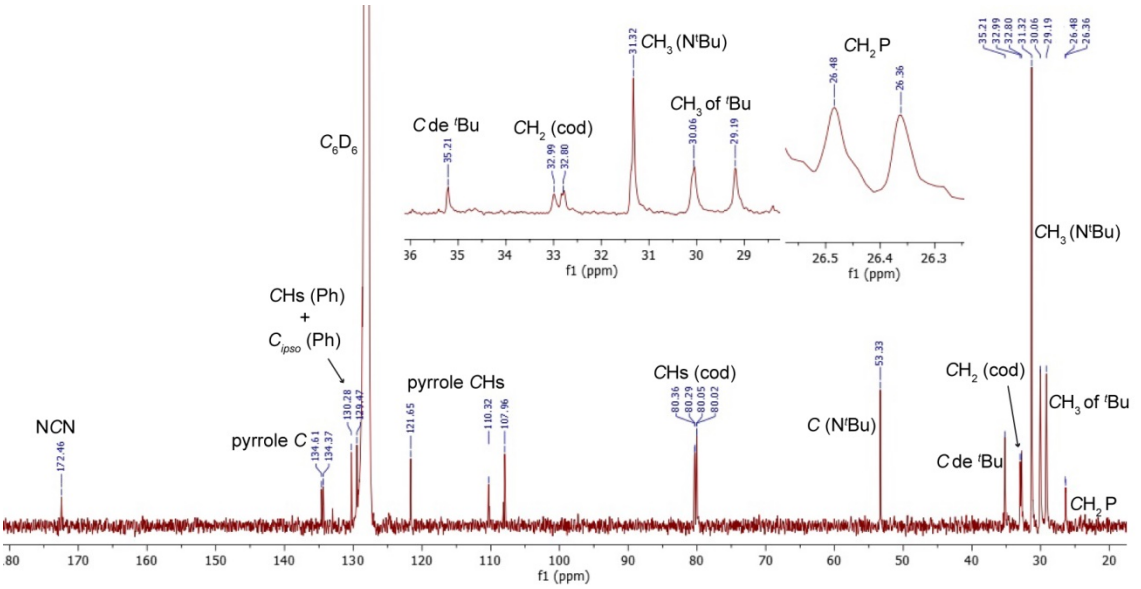


Fig. S34 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of [Ni{κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(cod)] (**3$_{Ni-Ge}$**).

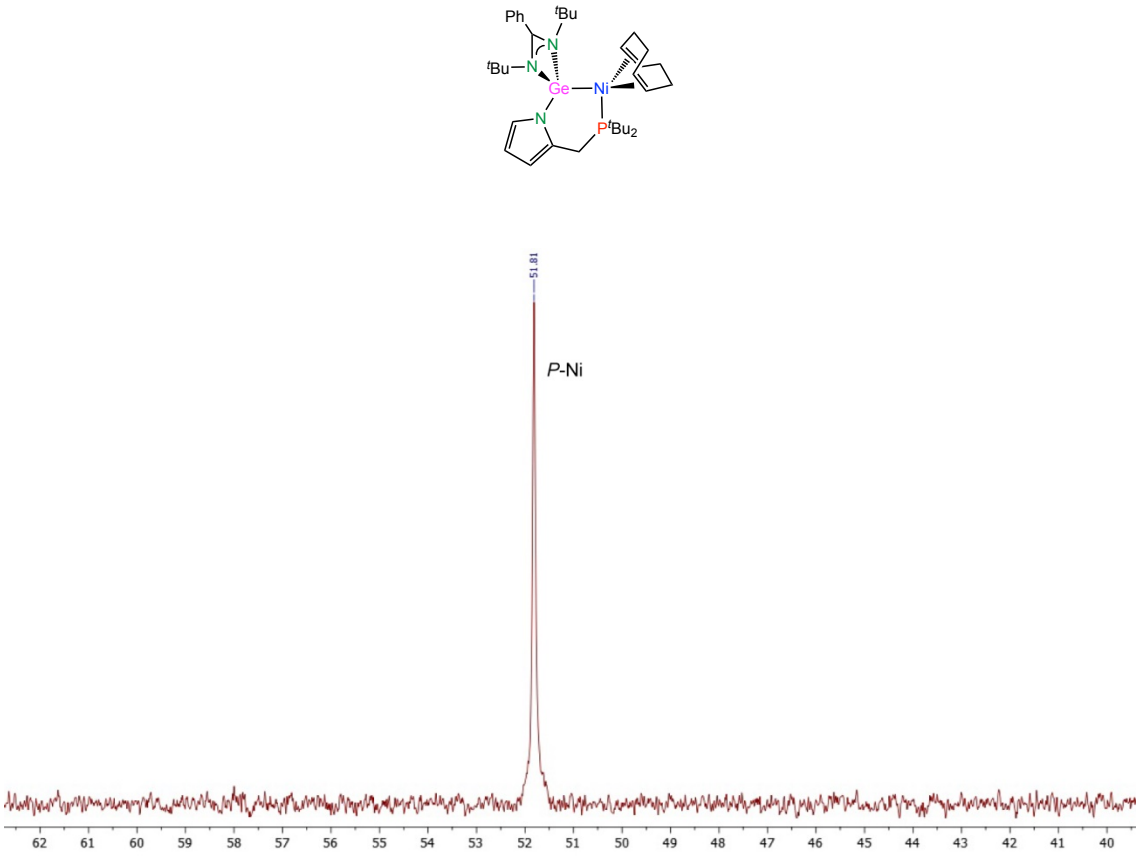


Fig. S35 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, C_6D_6, 298 K) of [Ni{κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(cod)] (**3$_{Ni-Ge}$**).

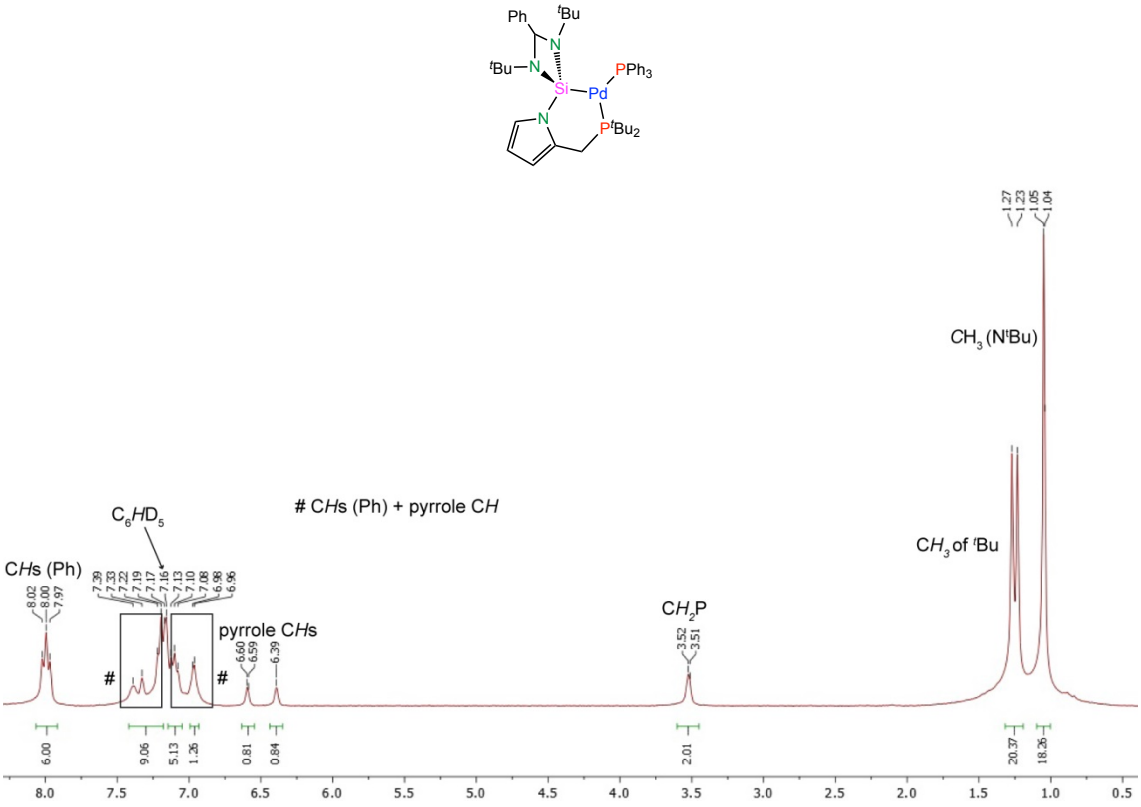


Fig. S36 ^{1}H NMR spectrum (300.1 MHz, C_6D_6, 298 K) of [Pd{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pd\text{-}Si}$**).

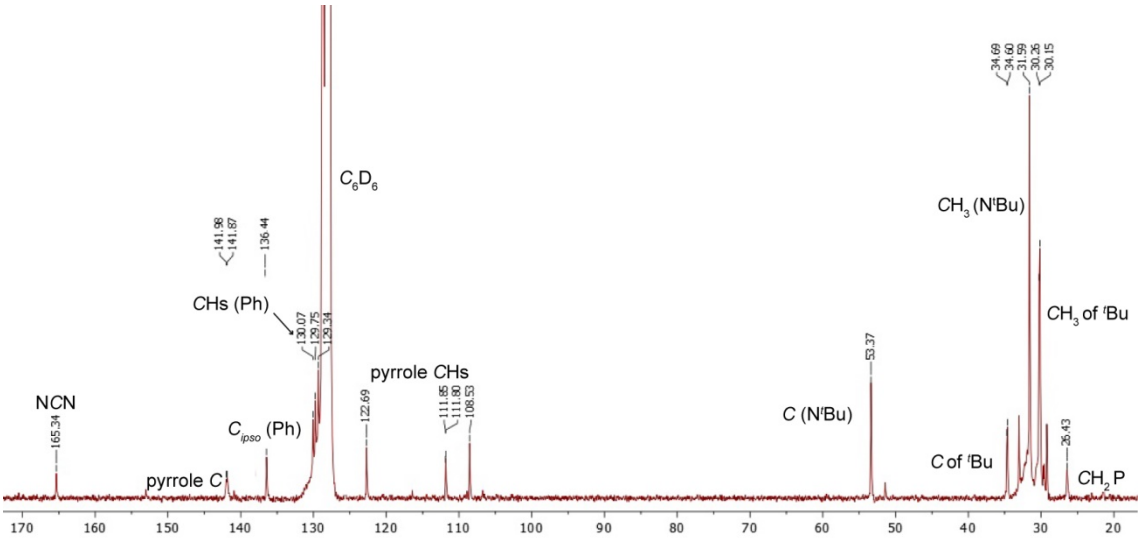
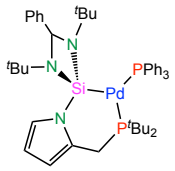


Fig. S37 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of [Pd{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pd\text{-}Si}$**).



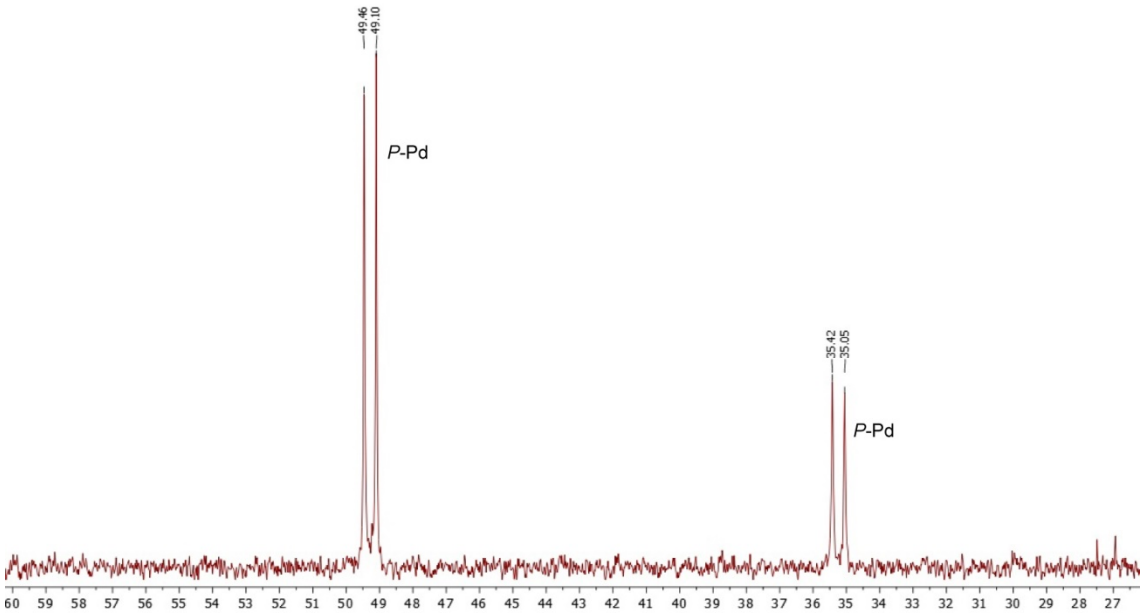


Fig. S38 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, C_6D_6, 298 K) of [Pd{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pd\text{-}Si}$**).

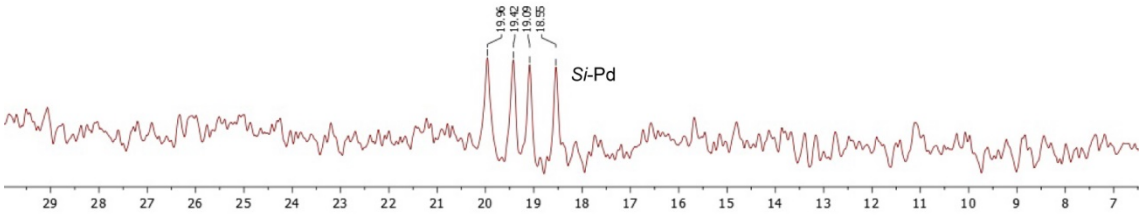


Fig. S39 $^{29}Si\{^{1}H\}$ NMR spectrum (79.5 MHz, C_6D_6, 298 K) of [Pd{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pd\text{-}Si}$**).

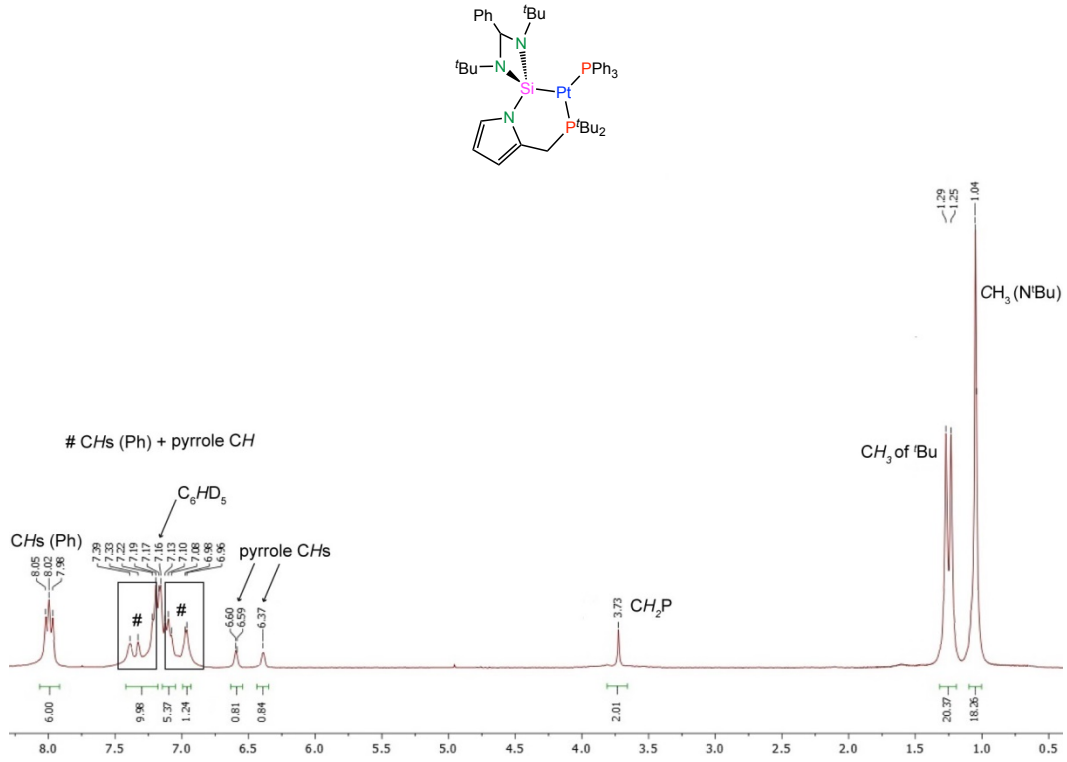


Fig. S40 ^{1}H NMR spectrum (300.1 MHz, C_6D_6, 298 K) of [Pt{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pt\text{-}Si}$**).

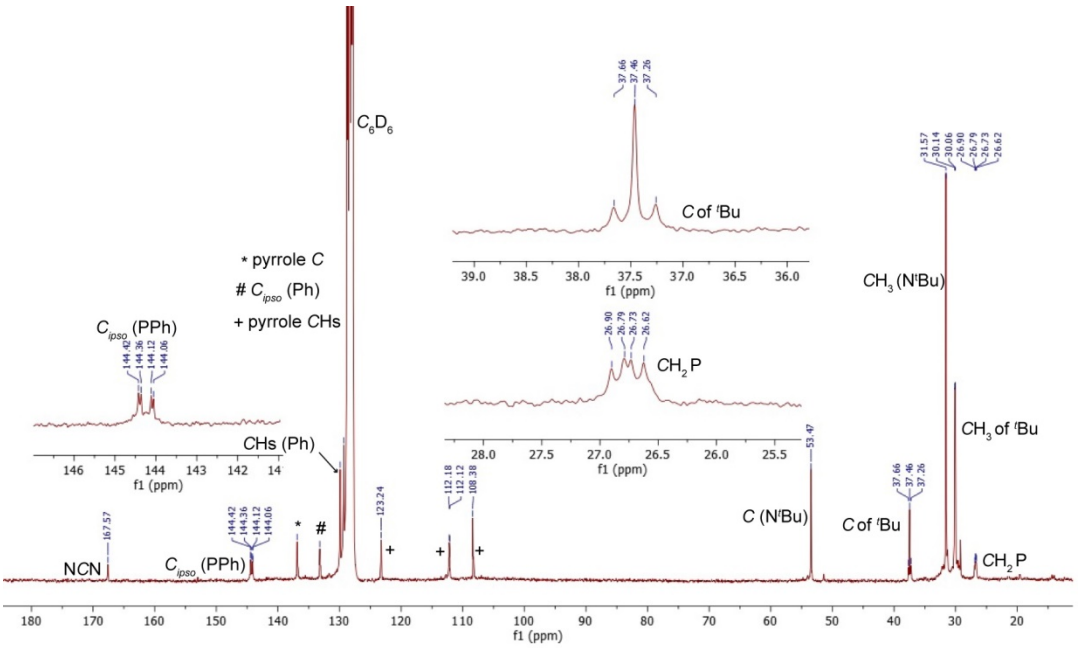
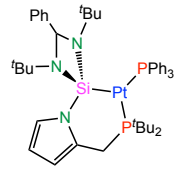


Fig. S41 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of [Pt{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pt\text{-}Si}$**).



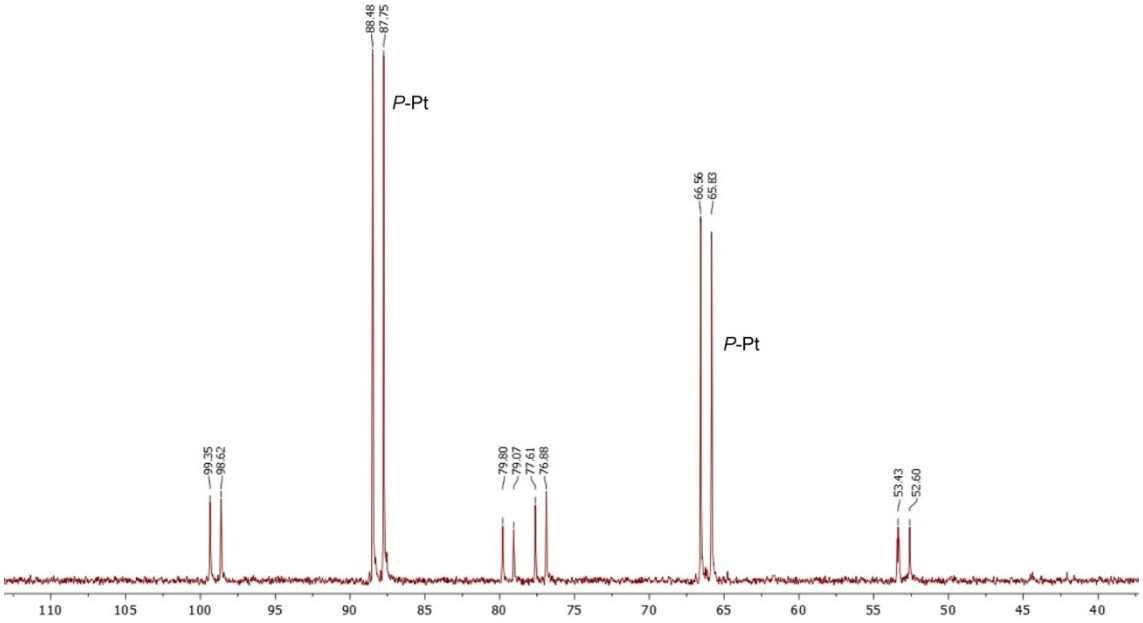


Fig. S42 $^{31}P\{^{1}H\}$ NMR spectrum (162.1 MHz, C_6D_6, 298 K) of [Pt{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pt-Si}$**).

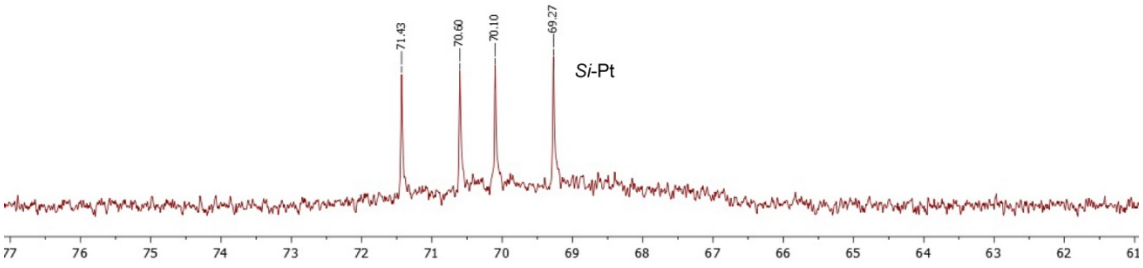


Fig. S43 $^{29}Si\{^{1}H\}$ NMR spectrum (79.5 MHz, C_6D_6, 298 K) of [Pt{κ^2*P*,*Si*-Si(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pt-Si}$**).

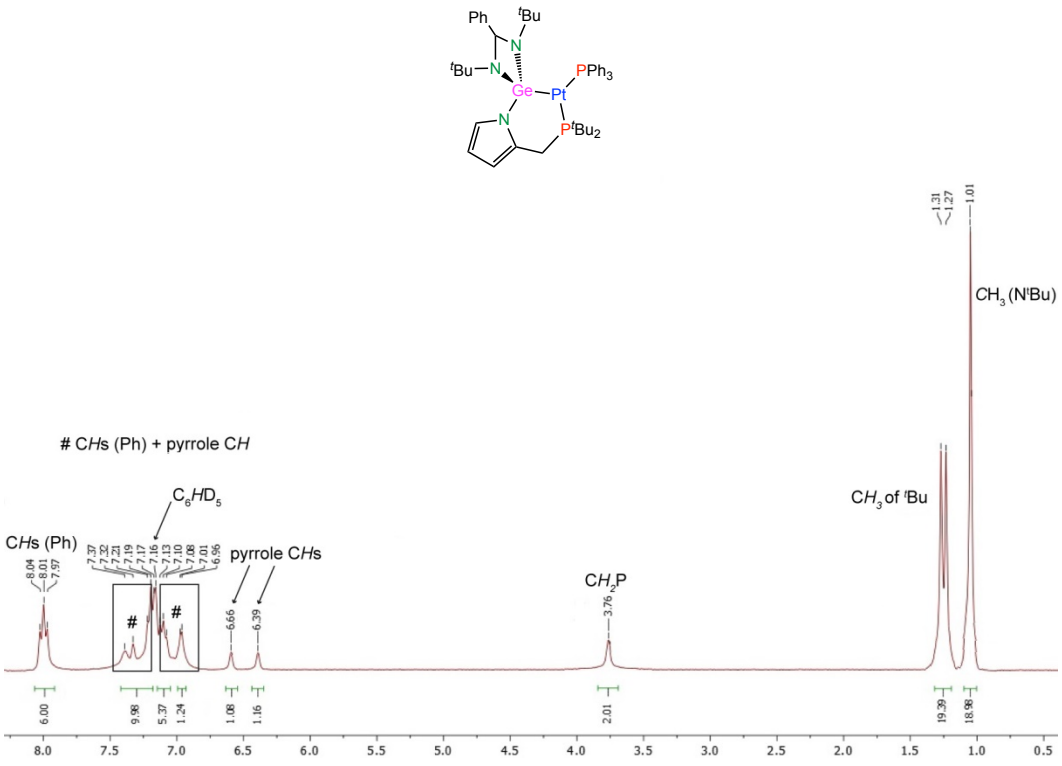


Fig. S44 ^{1}H NMR spectrum (300.1 MHz, C_6D_6, 298 K) of [Pt{κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pt-Ge}$**).

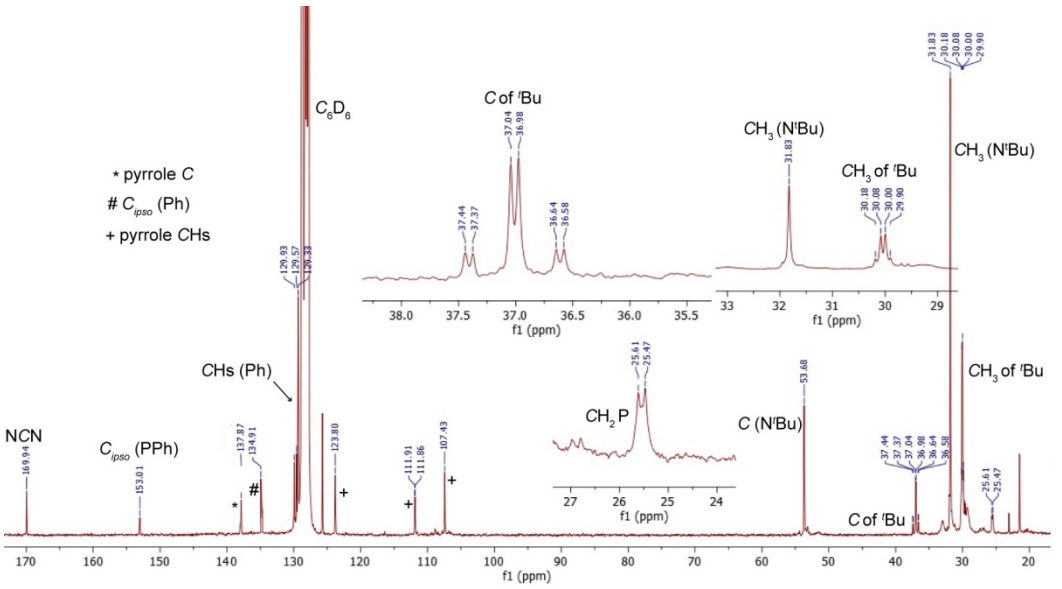


Fig. S45 ^{13}C{^{1}H} NMR spectrum (100.6 MHz, C_6D_6, 298 K) of [Pt{κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4$_{Pt-Ge}$**).

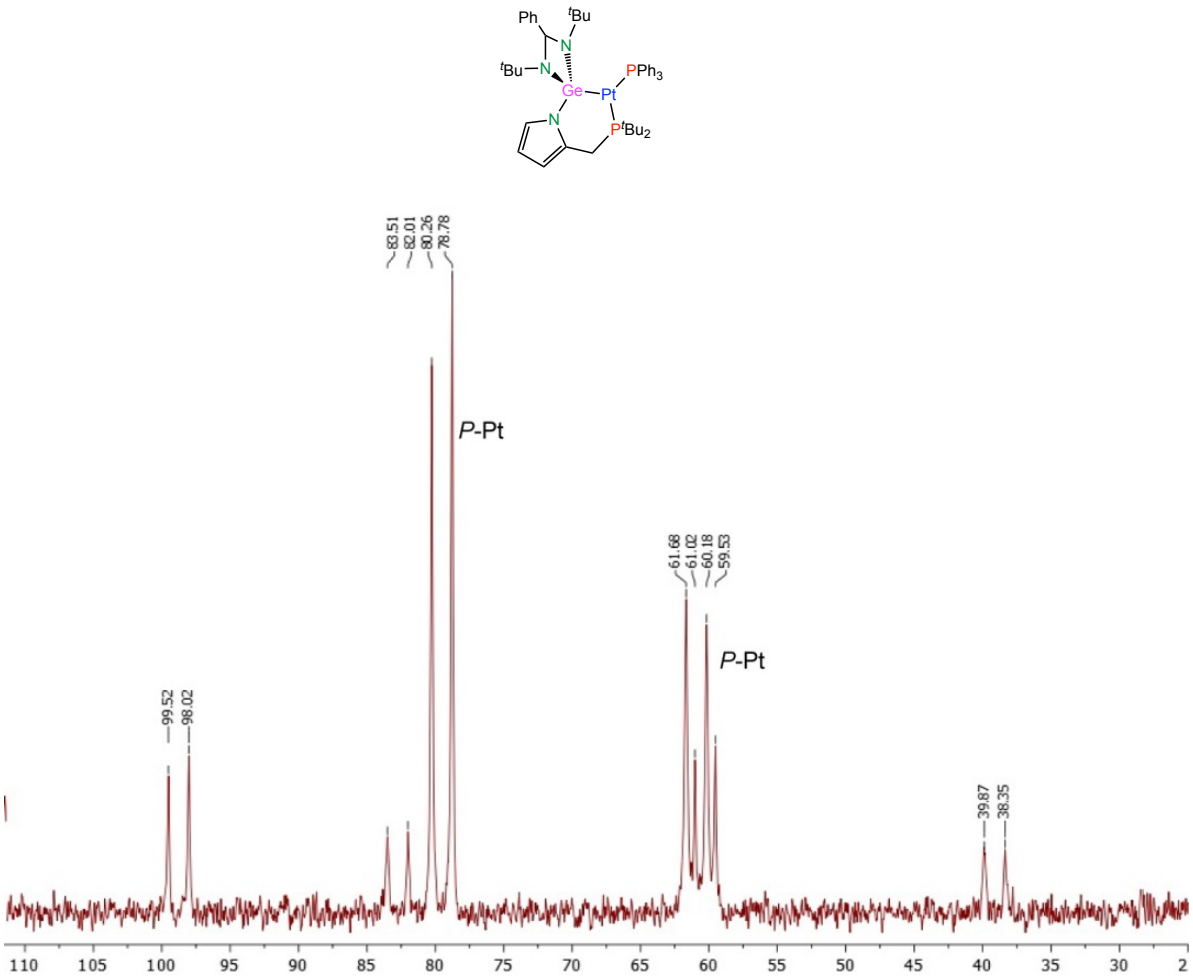


Fig. S46 $^{31}P\{^{1}H\}$ NMR spectrum (121.5 MHz, C_6D_6, 298 K) of [Pt{κ^2*P*,*Ge*-Ge(^{t}Bu$_2$bzam)pyrmP^{t}Bu$_2$}(PPh$_3$)] (**4**$_{Pt\text{-}Ge}$).

2. Figures of DFT/NBO calculations

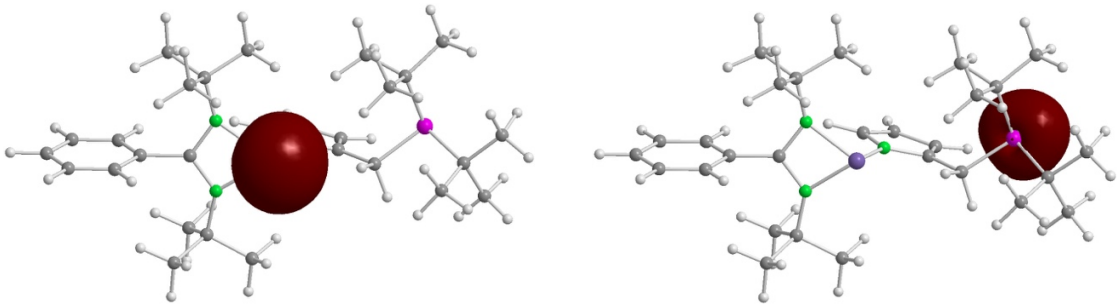


Fig. S47 HOMO–7 (left) and HOMO–11 (right) orbitals of silylene-phosphane $\mathbf{1}_{Si}$, corresponding to the lone pairs of the Si and P atoms, respectively.

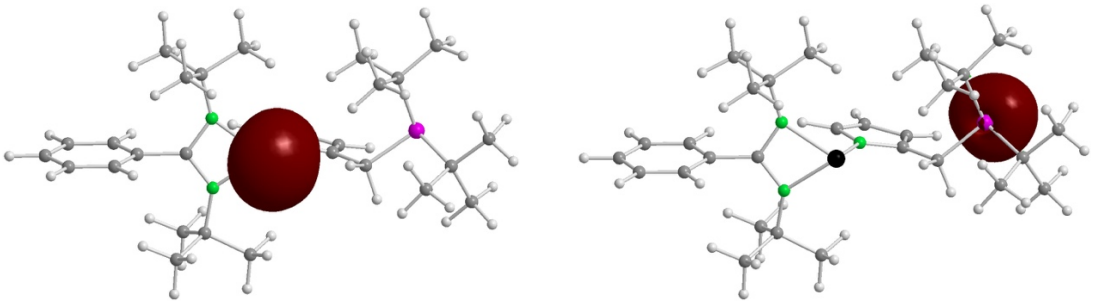


Fig. S48 HOMO–11 (left) and HOMO–10 (right) orbitals of germylene-phosphane $\mathbf{1}_{Ge}$, corresponding to the lone pairs of the Ge and P atoms, respectively.

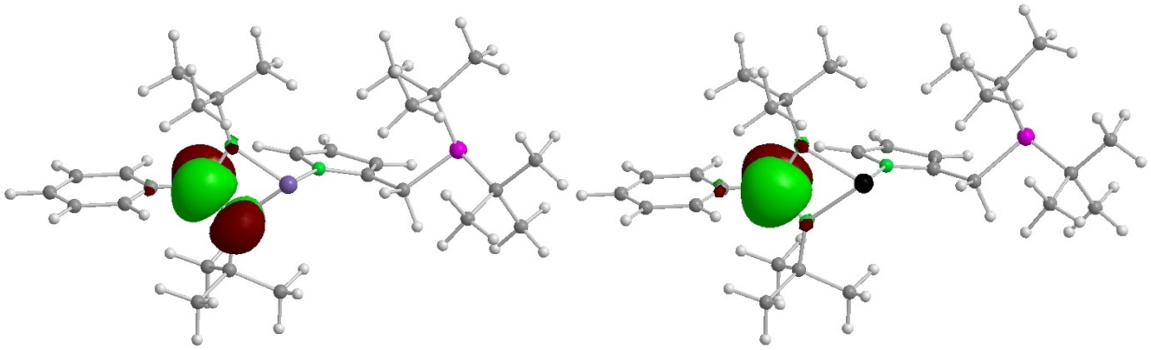


Fig. S49 LUMOs of tetrylene-phosphanes $\mathbf{1}_{Si}$ (left) and $\mathbf{1}_{Ge}$ (right).

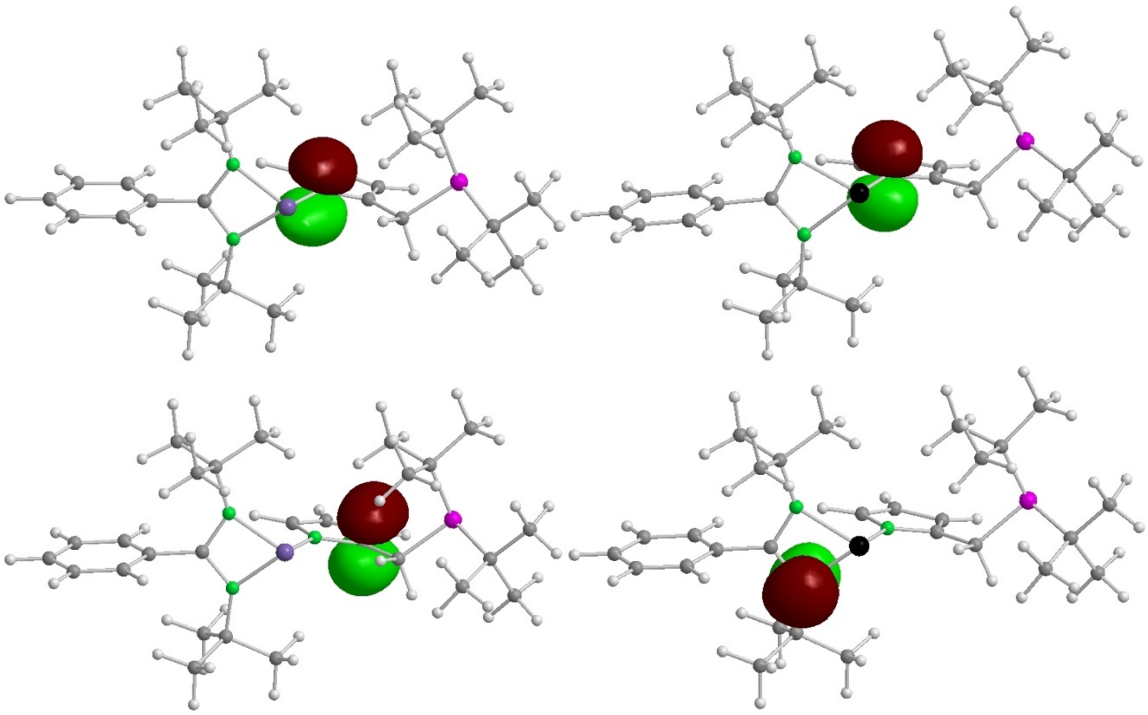


Fig. S50 HOMOs (top) and HOMOs–1 (bottom) of tetrylene-phosphanes $\mathbf{1}_{Si}$ (left) and $\mathbf{1}_{Ge}$ (right).

3. XRD data

Table S1. Crystal, measurement and refinement data for the compounds studied by X-ray diffraction.

	$\mathbf{1}_{Si}$	$\mathbf{2}_{Pd\text{-}Si}\cdot(C_4H_8O)$	$\mathbf{3}_{Ni\text{-}Ge}$	$\mathbf{4}_{Pd\text{-}Si}$
formula	$C_{28}H_{46}N_3PSi$	$C_{28}H_{46}Cl_2N_3PPdSi\cdot(C_4H_8O)$	$C_{36}H_{58}GeN_3NiP$	$C_{46}H_{61}N_3P_2PdSi$
fw	483.74	733.14	695.12	852.40
cryst syst	monoclinic	monoclinic	monoclinic	orthorhombic
space group	*P*21/c	*P*21/c	*P*21/c	*P*bca
a, Å	8.833(5)	18.2783(4)	20.592(1)	18.1593(2)
b, Å	18.065(5)	10.5426(2)	8.8479(3)	20.9946(2)
c, Å	18.265(5)	18.3984(4)	20.8528(8)	23.5554(2)
α, deg	90	90	90	90
β, deg	94.564(5)	94.109(2)	109.118(5)	90
γ, deg	90	90	90	90
V, Å^3	2905(2)	3536.3(3)	3589.7(3)	8980.4(2)
Z	4	4	4	8
F(000)	1056	1536	1480	3584
D_{calcd}, g cm^{-3}	1.106	1.377	1.286	1.261
μ, mm^{-1} (Mo Kα)	0.156	6.591	1.434	4.510
cryst size, mm	0.18 x 0.18 x 0.09	0.39 x 0.14 x 0.10	0.22 x 0.14 x 0.09	0.31 x 0.25 x 0.13
T, K	100(2)	150(2)	150(2)	150(2)
θ range, deg	2.24 to 28.35	4.82 to 69.60	2.41 to 31.44	3.73 to 69.53
min./max. *h*, *k*, *l*	–11/11, –24/24, –23/24	–22/20, –12/9, –22/21	–28/29, –12/12, –30/28	–22/14, –24/20, –28/23
no. collected reflns	59980	15937	51967	26822
no. unique reflns	7251	6536	11120	8279
no. reflns with $I > 2\sigma(I)$	6123	6069	5388	7706
no. params/restraints	310/0	382/0	391/0	490/0
GOF (on F^2)	1.056	1.079	1.011	1.027
R_1 (on F, $I > 2\sigma(I)$)	0.038	0.043	0.075	0.026
wR_2 (on F^2, all data)	0.099	0.121	0.108	0.068
min./max. $\Delta\rho$, e Å^{-3}	–0.320/0.346	–1.014/0.787	–0.622/0.766	–0.574/0.268
CCDC dep. no.	2001500	2001500	2001500	2001500

4. Atomic coordinates of DFT-optimized structures

1_{Si}

E = -1889.52071712 hartree

C	0.628182	3.052166	0.116815
H	-0.148683	2.702633	-0.582144
H	0.671813	4.149402	0.051841
H	0.323854	2.769920	1.135739
C	2.389866	2.833471	-1.658060
H	3.378668	2.428216	-1.918647
H	2.437864	3.929130	-1.757984
H	1.651531	2.451543	-2.379619
C	3.031210	2.955466	0.777550
H	2.803560	2.586197	1.789089
H	3.006680	4.055582	0.800598
H	4.052320	2.649704	0.513204
C	1.992482	2.442376	-0.227994
C	2.689521	-0.016627	-0.217173
C	4.174066	0.103329	-0.246330
C	4.842816	0.167413	-1.471048
H	4.272600	0.117878	-2.400560
C	6.230304	0.290000	-1.502934
H	6.747089	0.344565	-2.462327
C	6.954449	0.340214	-0.312641
H	8.041239	0.435578	-0.338572
C	6.289096	0.268425	0.910755
H	6.852091	0.305420	1.844645
C	4.901583	0.153066	0.945197
H	4.376229	0.104992	1.900636
C	2.364189	-2.552705	-0.301162
C	3.248547	-2.936933	-1.494676
H	2.757031	-2.661271	-2.440131
H	3.423677	-4.023949	-1.500293
H	4.227142	-2.438340	-1.449036
C	3.071566	-2.862590	1.024854
H	4.051144	-2.367784	1.086142
H	3.238203	-3.946807	1.117564
H	2.449447	-2.532594	1.870609
C	1.048749	-3.339896	-0.359184
H	0.400263	-3.077271	0.490796
H	1.251424	-4.420229	-0.322013
H	0.504931	-3.125693	-1.292932
C	0.276451	-0.347438	2.241819
H	1.308188	-0.009783	2.288363
C	-0.574439	-0.739984	3.243892
H	-0.339642	-0.779941	4.305189
C	-1.819293	-1.064439	2.627775
H	-2.734047	-1.388596	3.118363

C	-1.675614	-0.855001	1.274777
C	-2.686475	-1.017054	0.180057
H	-2.928569	-2.085376	0.055374
H	-2.263107	-0.685818	-0.780031
C	-5.330866	-0.935992	-0.937756
C	-4.559228	-1.190760	-2.240754
H	-5.248572	-1.598361	-3.000803
H	-3.753778	-1.927471	-2.108069
H	-4.113598	-0.276115	-2.653891
C	-5.816573	-2.288578	-0.382406
H	-6.400035	-2.822461	-1.152308
H	-6.457023	-2.151608	0.501867
H	-4.980279	-2.944108	-0.091391
C	-6.569827	-0.085699	-1.248976
H	-6.311626	0.831559	-1.798066
H	-7.113706	0.198894	-0.334379
H	-7.262480	-0.663726	-1.884513
C	-3.937029	1.662558	0.114015
C	-2.867885	2.100255	1.132778
H	-1.891958	1.636553	0.942704
H	-3.156912	1.847787	2.164616
H	-2.738540	3.194962	1.070844
C	-3.427363	1.961228	-1.299140
H	-3.128344	3.022244	-1.369963
H	-4.201695	1.792065	-2.062197
H	-2.544805	1.355342	-1.560581
C	-5.198192	2.495091	0.401618
H	-4.947225	3.568982	0.357864
H	-5.594545	2.283013	1.406855
H	-6.001210	2.317923	-0.325136
N	1.808149	0.987024	-0.116812
N	1.983648	-1.135149	-0.352673
N	-0.381374	-0.413580	1.025710
P	-4.329099	-0.167307	0.504939
Si	0.362511	-0.161386	-0.633214

$\mathbf{1}_{Ge}$

E = -3677.07755888 hartree

C	0.648631	3.076745	0.030413
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H	0.700547	4.174266	-0.023030
H	0.313061	2.786251	1.037147
C	2.455792	2.850205	-1.698231
H	3.443808	2.428675	-1.935510
H	2.524076	3.945293	-1.793394
H	1.730872	2.484100	-2.441715
C	3.031087	2.967988	0.752408

H	2.782835	2.590217	1.755812
H	2.999151	4.067848	0.782702
H	4.059653	2.670033	0.509897
C	2.017358	2.456760	-0.280385
C	2.684375	-0.006109	-0.251004
C	4.166298	0.121123	-0.136640
C	4.950824	0.211196	-1.288811
H	4.474542	0.167228	-2.269923
C	6.333326	0.349117	-1.183409
H	6.940505	0.422566	-2.087099
C	6.937494	0.388351	0.072361
H	8.020264	0.495865	0.155083
C	6.156584	0.289838	1.223827
H	6.625969	0.319198	2.208263
C	4.774045	0.159630	1.120531
H	4.158599	0.094380	2.019534
C	2.423836	-2.543736	-0.340791
C	3.468169	-2.919001	-1.400863
H	3.107684	-2.653179	-2.406692
H	3.655395	-4.003841	-1.376897
H	4.425809	-2.408874	-1.225810
C	2.950433	-2.841263	1.070672
H	3.907743	-2.334343	1.257907
H	3.117917	-3.922953	1.190253
H	2.218461	-2.515858	1.825380
C	1.144666	-3.358671	-0.573284
H	0.380609	-3.100417	0.176905
H	1.356480	-4.434814	-0.492557
H	0.732672	-3.166382	-1.577065
C	0.262243	-0.382772	2.189387
H	1.293821	-0.041529	2.197071
C	-0.551911	-0.769921	3.227141
H	-0.278900	-0.803077	4.279372
C	-1.816602	-1.098853	2.659229
H	-2.713579	-1.419356	3.184224
C	-1.718866	-0.897464	1.298770
C	-2.770942	-1.048246	0.241582
H	-3.047206	-2.110256	0.135583
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C	-4.720340	-1.157561	-2.126987
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C	-5.951508	-2.226280	-0.234619
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C	-2.835492	2.079857	1.196468
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H	-3.093053	1.828241	2.236706
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C	-3.479914	1.957685	-1.215145
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C	-5.178202	2.533692	0.543851
H	-4.902250	3.686800	0.488848
H	-5.543059	2.332854	1.563118
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N	1.812486	1.443600	-0.186997
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N	-0.438074	-0.459641	1.263600
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Ge	0.268879	-0.170522	-0.785168