

Supporting Information

Iridium-NSiN Catalyzed Formation of Silylphosphinecarboxylates from Reaction of CO₂ with P(SiMe₃)R₂ (R = Ph, Cy)

Alejandro Julián,^a Víctor Polo,^b Francisco J. Fernández-Alvarez,^{*a} and
Luis A. Oro^{*a,c}

^a Departamento de Química Inorgánica – Instituto de Síntesis Química y Catálisis Homogénea (ISQCH). Universidad de Zaragoza. Facultad de Ciencias 50009, Zaragoza – Spain. [paco@unizar.es, oro@unizar.es]

^b Departamento de Química Física – Instituto de Biocomputación y Física de Sistemas complejos (BIFI) – Universidad de Zaragoza. Facultad de Ciencias 50009, Zaragoza – Spain.

^c Visiting Professor at Center of Research Excellence in Petroleum Refining & Petrochemicals, King Fahd University of Petroleum & Minerals, 31261 Dhahran - Saudi Arabia.

S.1. Selection of NMR spectra

Figure S.1.1 ^1H NMR of $\text{P}(\text{SiMe}_3)\text{Cy}_2$	(page 3)
Figure S.1.2 ^{13}C APT of $\text{P}(\text{SiMe}_3)\text{Cy}_2$	(page 3)
Figure S.1.3 $^{31}\text{P}\{^1\text{H}\}$ NMR of $\text{P}(\text{SiMe}_3)\text{Cy}_2$	(page 4)
Figure S.1.4 ^1H ^{29}Si HMBC NMR of $\text{P}(\text{SiMe}_3)\text{Cy}_2$	(page 4)
Figure S.1.5 ^1H NMR of 3a	(page 5)
Figure S.1.6. ^{13}C APT of 3a	(page 5)
Figure S.1.7 $^{31}\text{P}\{^1\text{H}\}$ NMR of 3a	(page 6)
Figure S.1.8 $^{29}\text{Si}\{^1\text{H}\}$ NMR of 3a	(page 6)
Figure S.1.9 ^1H ^{29}Si HMBC NMR of 3a	(page 7)
Figure S.1.10 ^1H NMR of 3b	(page 7)
Figure S.1.11. ^{13}C APT of 3b	(page 8)
Figure S.1.12 $^{31}\text{P}\{^1\text{H}\}$ NMR of 3b	(page 8)
Figure S.1.13 $^{29}\text{Si}\{^1\text{H}\}$ NMR of 3b	(page 9)
Figure S.1.14 ^1H ^{29}Si HMBC NMR of 3b	(page 9)
Figure S.1.15 ^1H NMR of 4	(page 10)
Figure S.1.16 ^{13}C APT of 4	(page 10)
Figure S.1.17. $^{31}\text{P}\{^1\text{H}\}$ NMR of 4	(page 11)
Figure S.1.18 $^{29}\text{Si}\{^1\text{H}\}$ NMR of 4	(page 11)
Figure S.1.19 ^1H ^{29}Si HMBC NMR of 4	(page 12)
Figure S.1.20 ^1H NMR of 5	(page 12)
Figure S.1.21 ^{13}C APT of 5	(page 13)
Figure S.1.22 $^{31}\text{P}\{^1\text{H}\}$ NMR of 5	(page 13)
Figure S.1.23 $^{29}\text{Si}\{^1\text{H}\}$ NMR of 5	(page 14)
Figure S.1.24 ^1H ^{29}Si HMBC NMR of 5	(page 14)

Figure S.1.1 ^1H NMR of $\text{P}(\text{SiMe}_3)\text{Cy}_2$

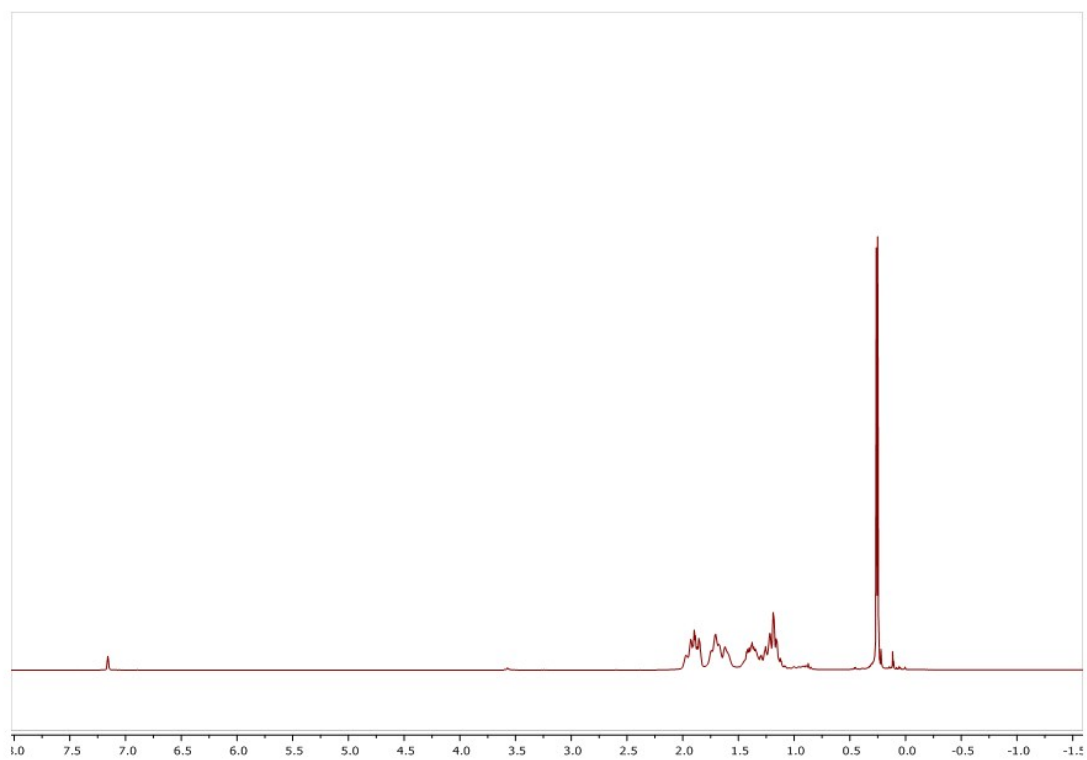


Figure S.1.2 ^{13}C APT of $\text{P}(\text{SiMe}_3)\text{Cy}_2$

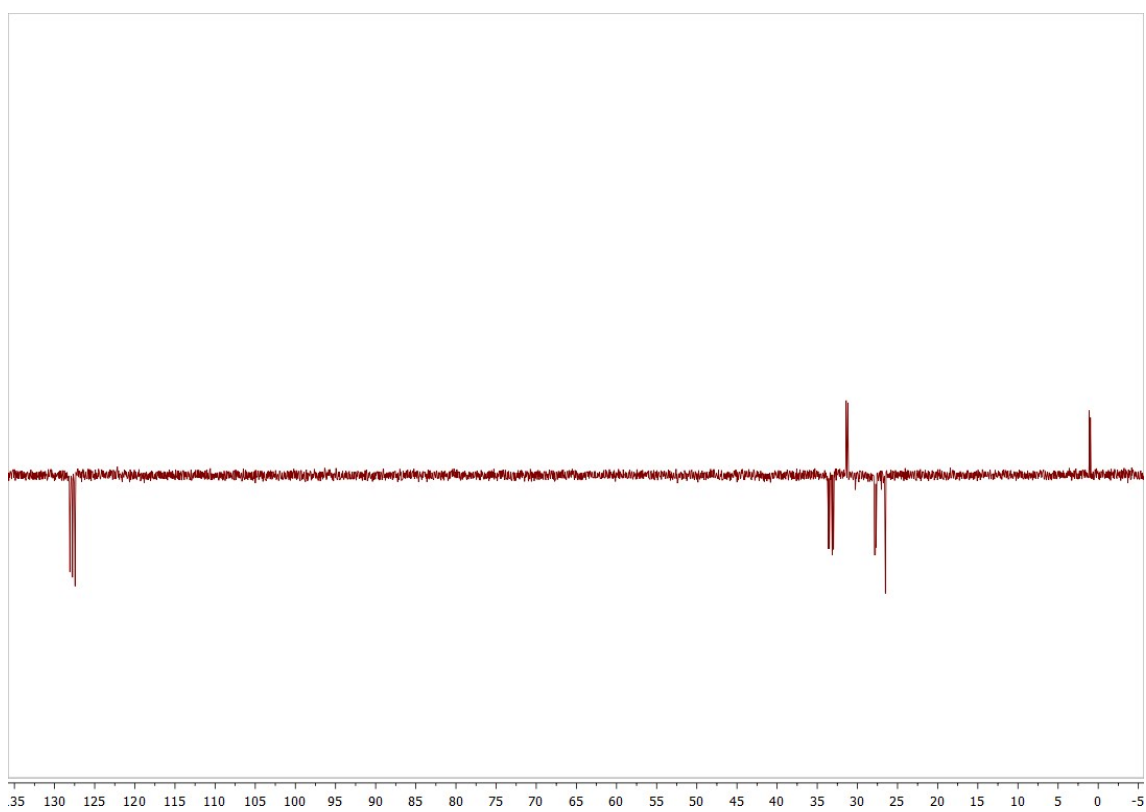


Figure S.1.3 $^{31}\text{P}\{^1\text{H}\}$ NMR of $\text{P}(\text{SiMe}_3)\text{Cy}_2$

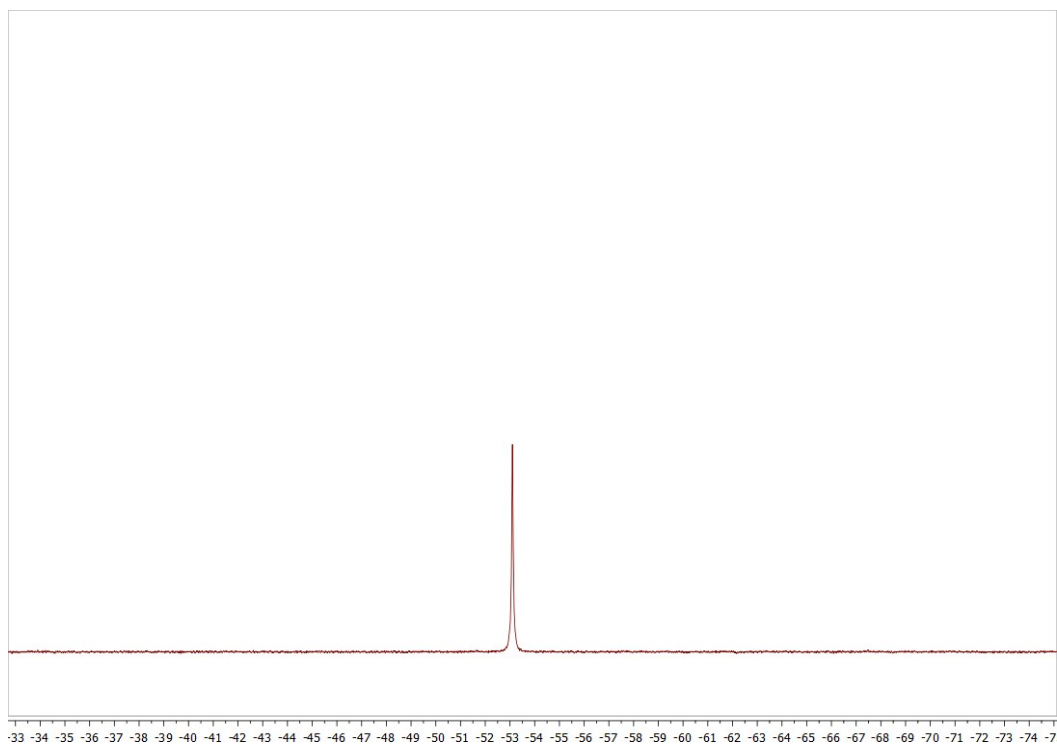


Figure S.1.4 ^1H ^{29}Si HMBC NMR of $\text{P}(\text{SiMe}_3)\text{Cy}_2$

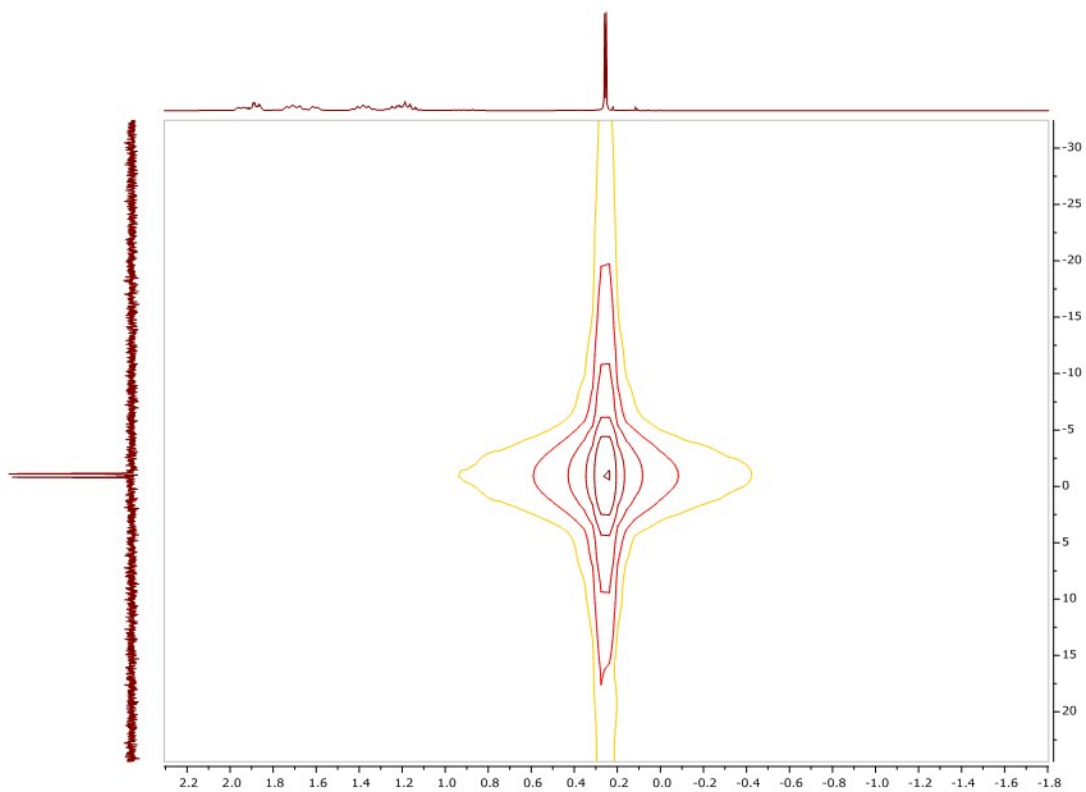


Figure S.1.5 ^1H NMR of 3a

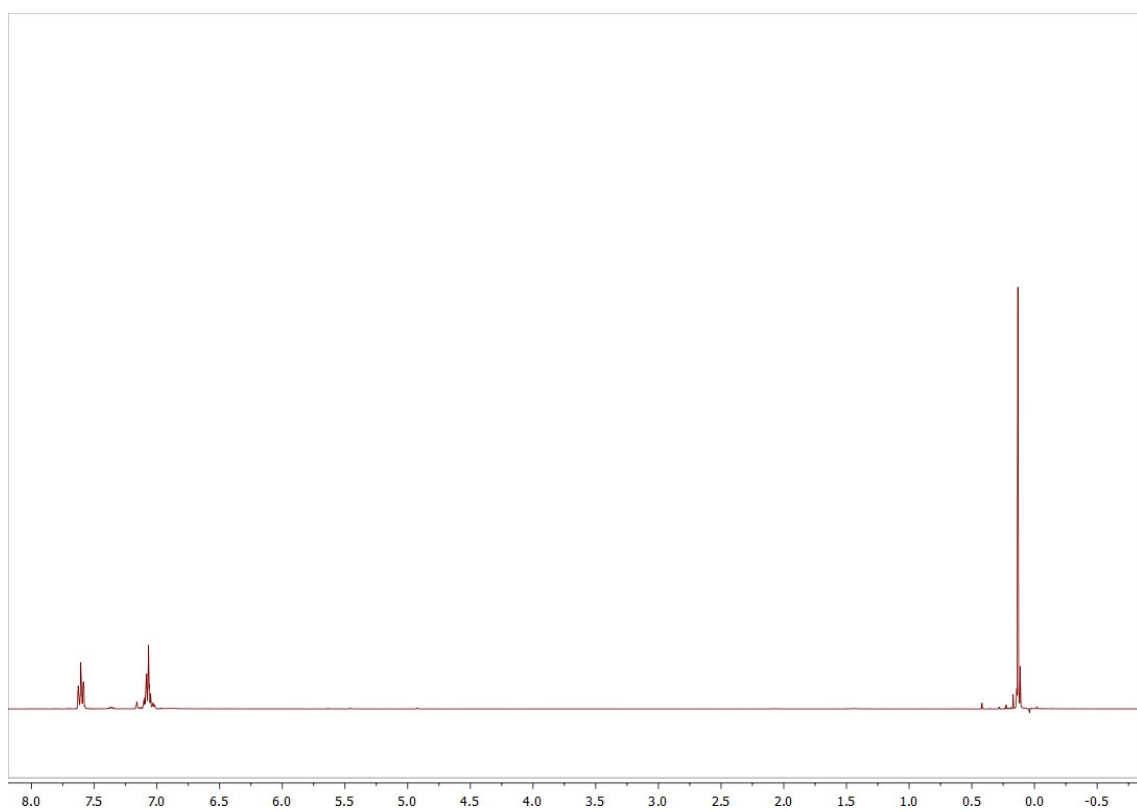


Figure S.1.6 ^{13}C APT of 3a

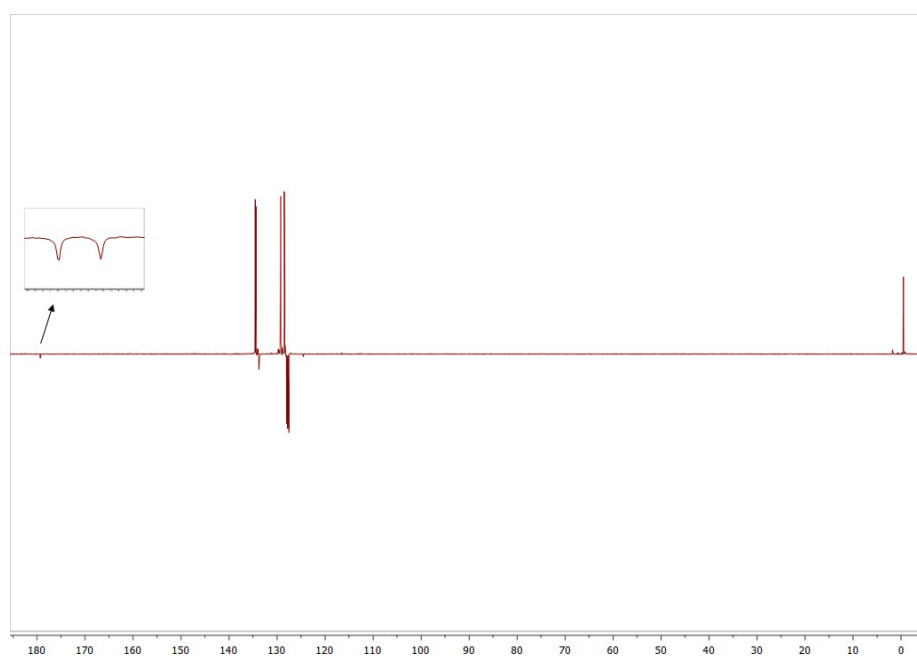


Figure S.1.7 $^{31}\text{P}\{^1\text{H}\}$ NMR of **3a**

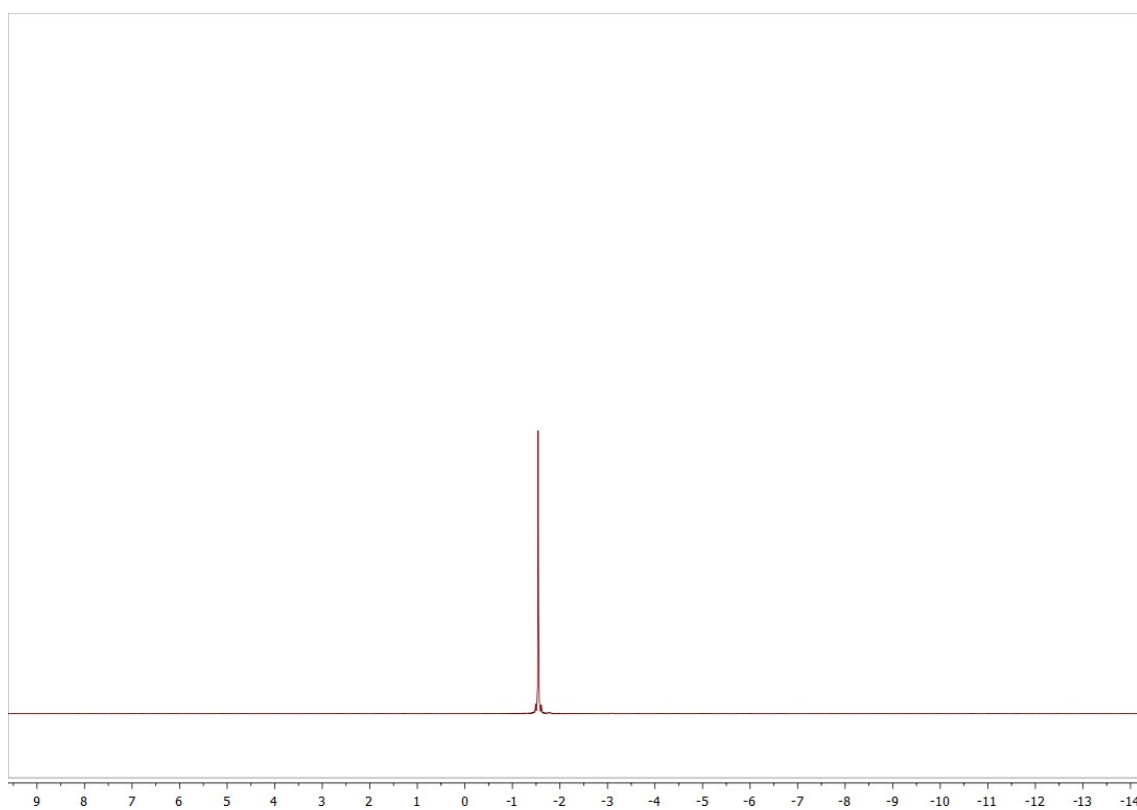


Figure S.1.8 $^{29}\text{Si}\{^1\text{H}\}$ NMR of **3a**

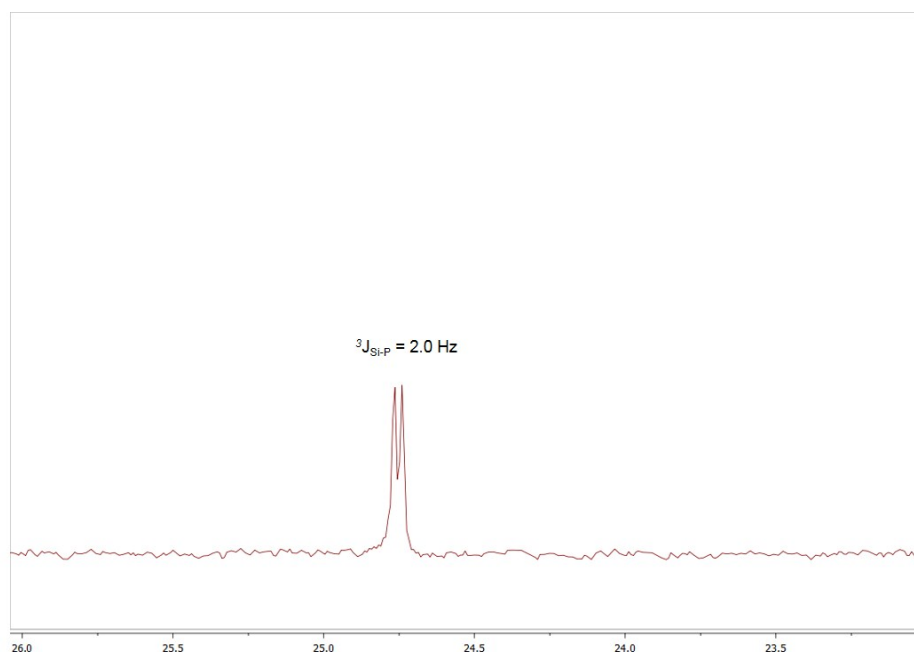


Figure S.1.9 ^1H ^{29}Si HMBC NMR of 3a

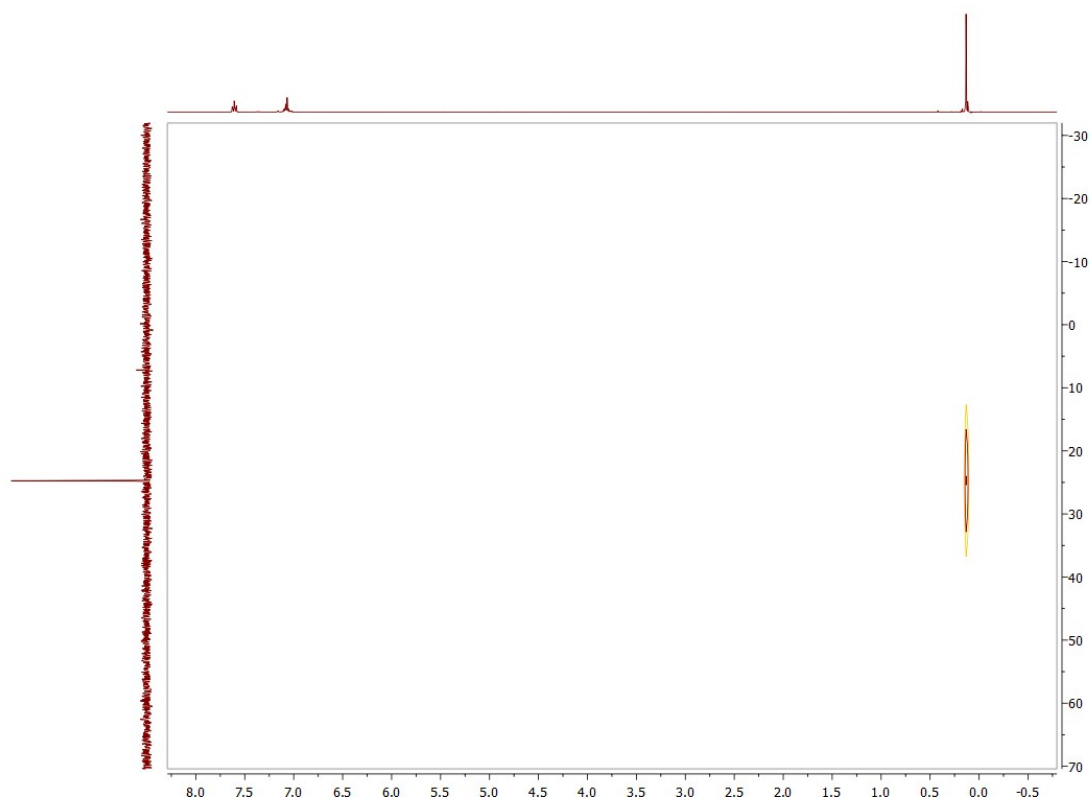


Figure S.1.10 ^1H NMR of 3b

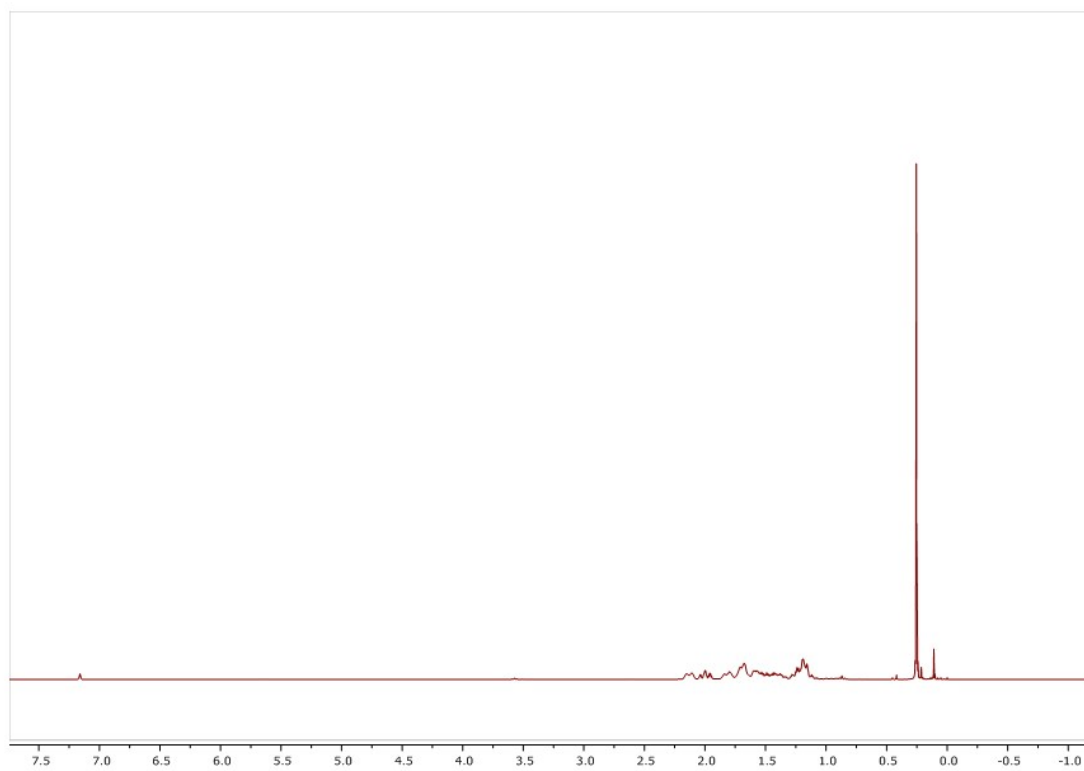


Figure S.1.11 ^{13}C APT of **3b**

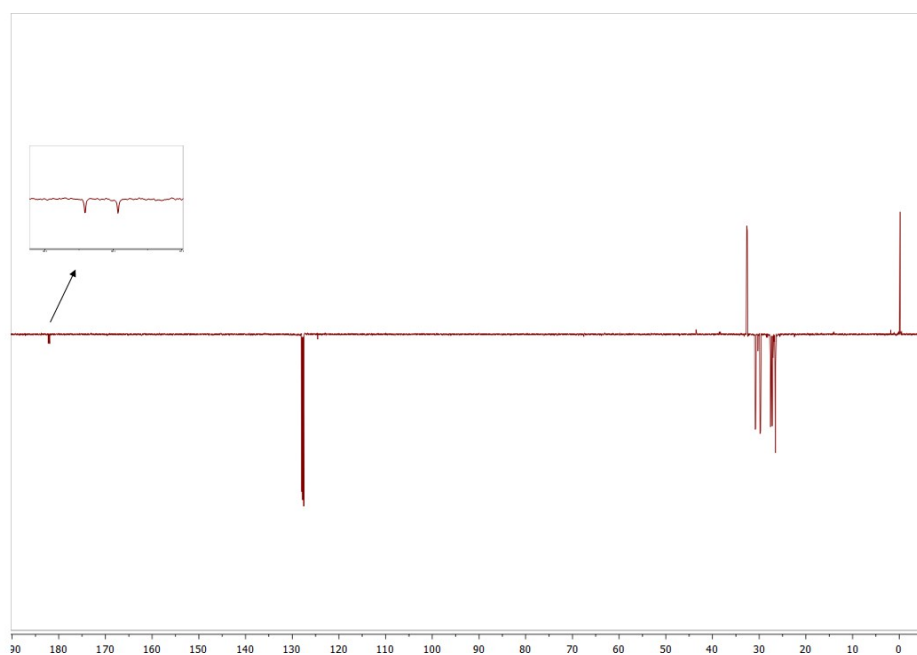


Figure S.1.12 $^{31}\text{P}\{^1\text{H}\}$ NMR of **3b**

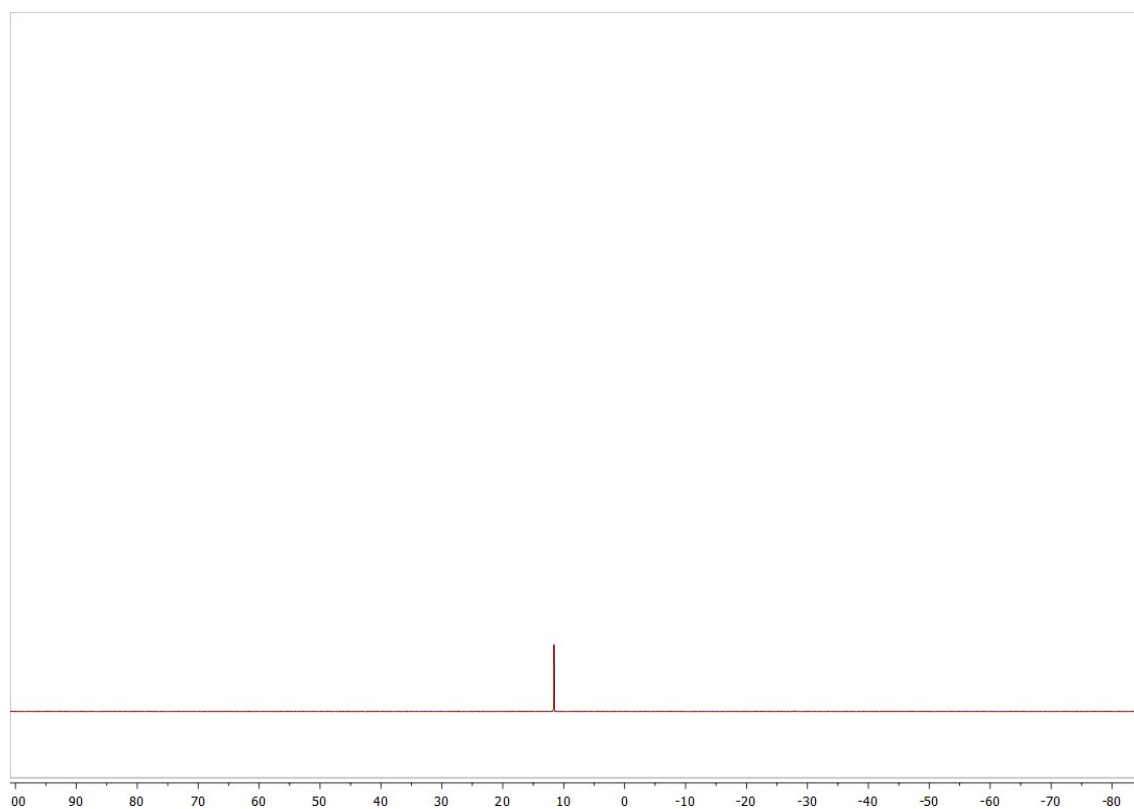


Figure S.1.13 $^{29}\text{Si}\{^1\text{H}\}$ NMR of 3b

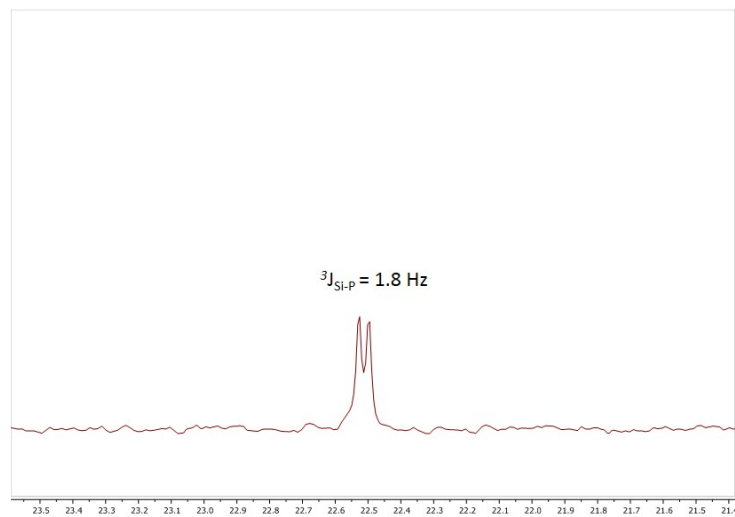


Figure S.1.14 ^1H ^{29}Si HMBC NMR of 3b

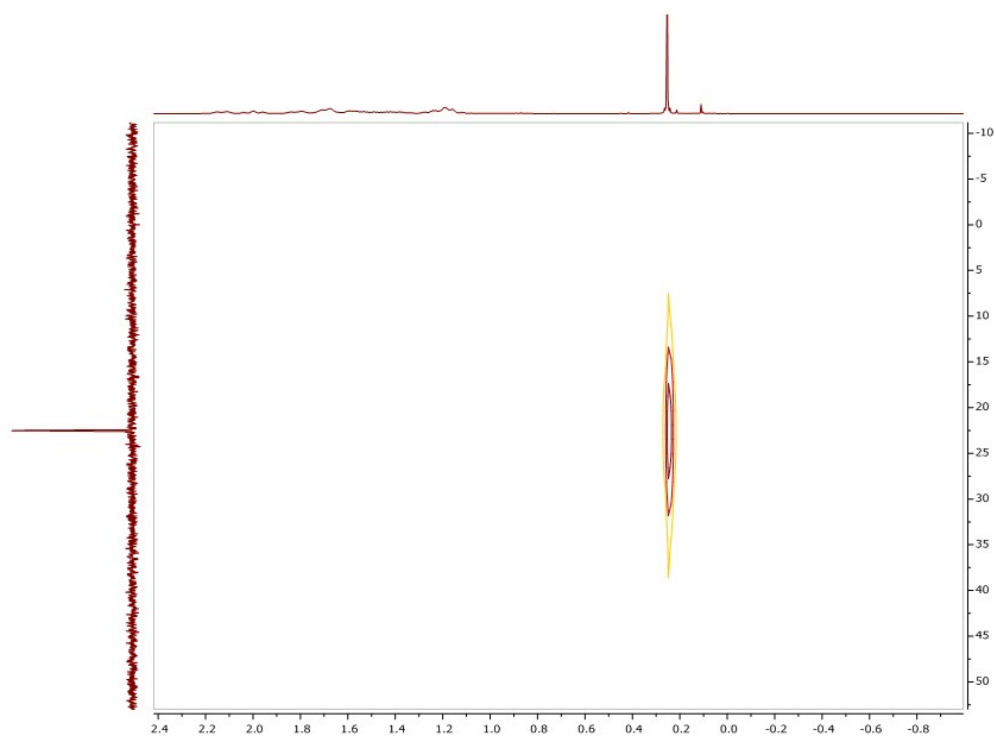


Figure S.1.15 ^1H NMR of **4**

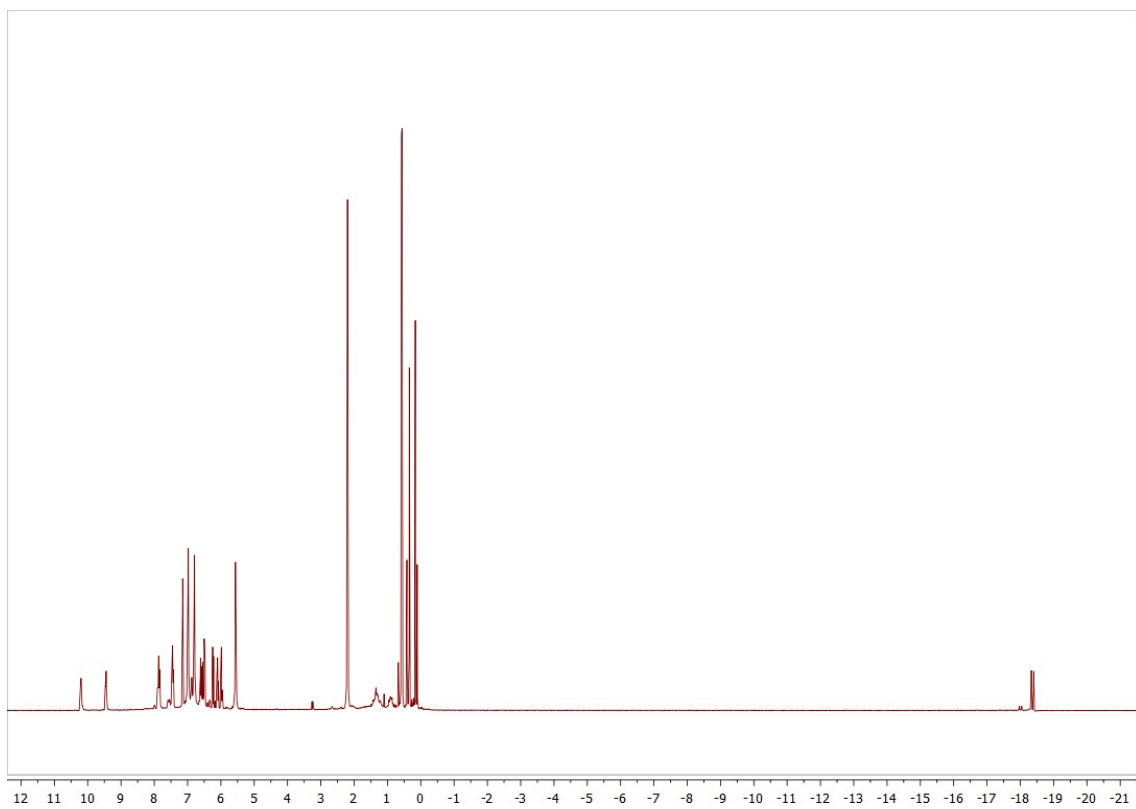


Figure S.1.16 ^{13}C APT of **4**

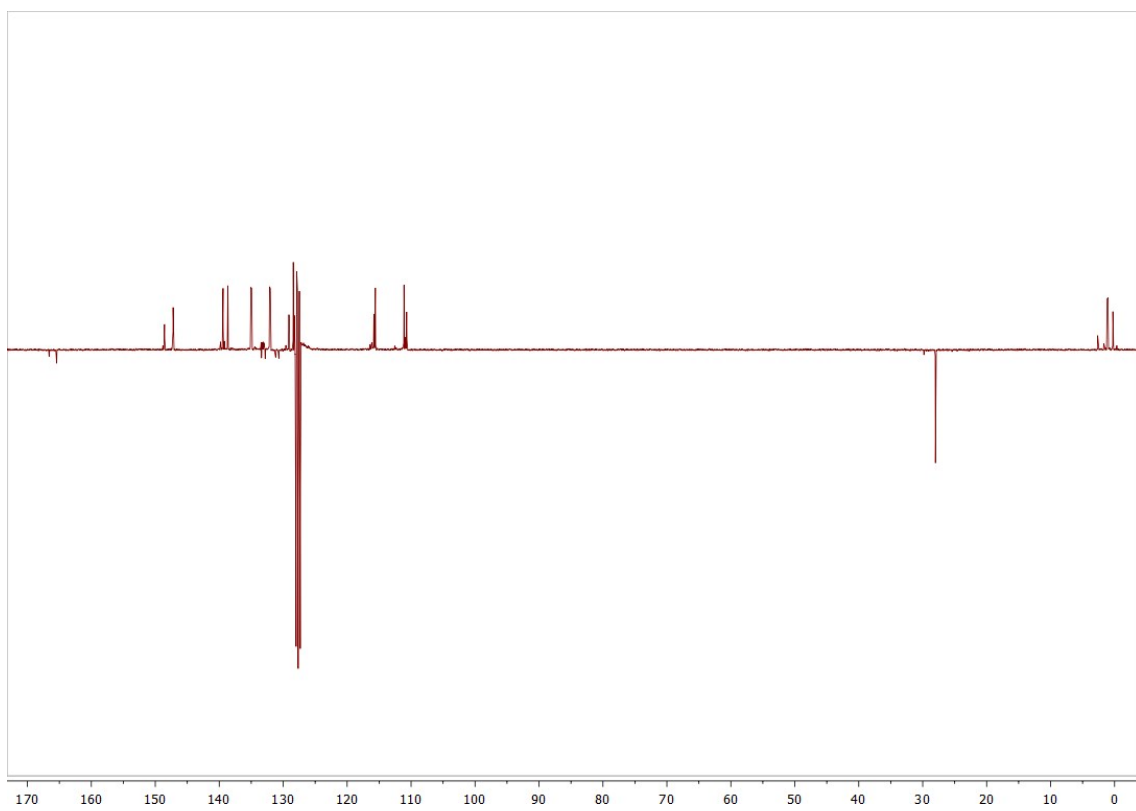


Figure S.1.17 $^{31}\text{P}\{^1\text{H}\}$ NMR of **4**

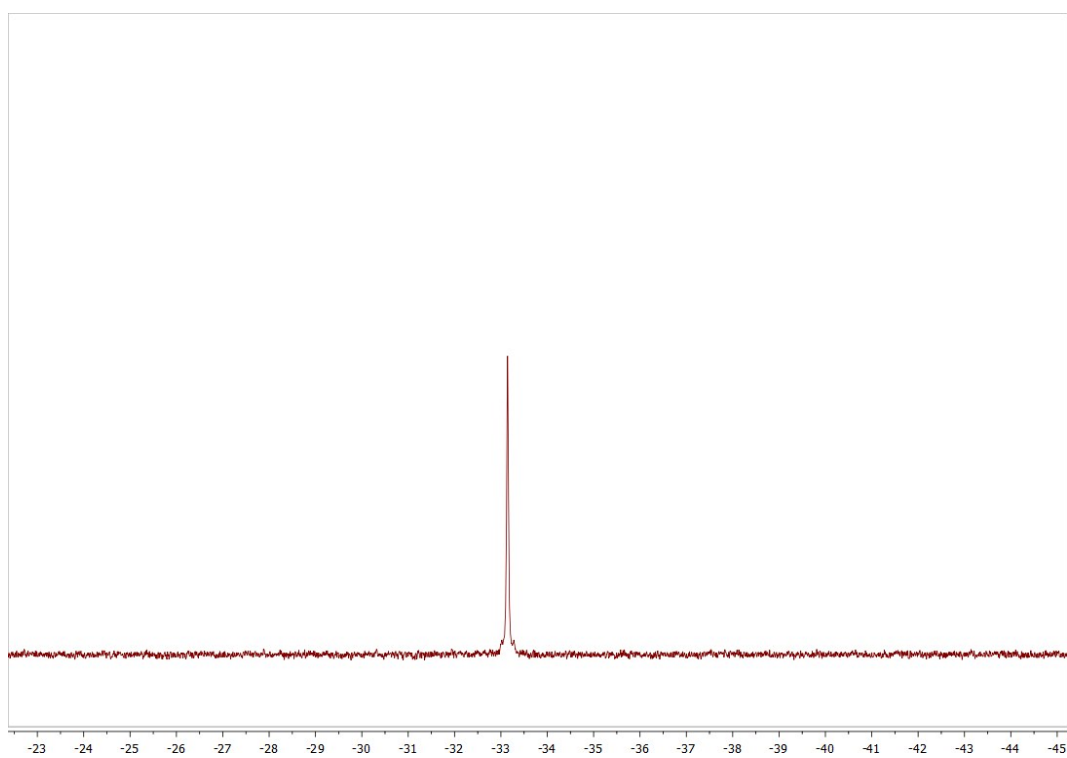


Figure S.1.18 $^{29}\text{Si}\{^1\text{H}\}$ NMR of **4**

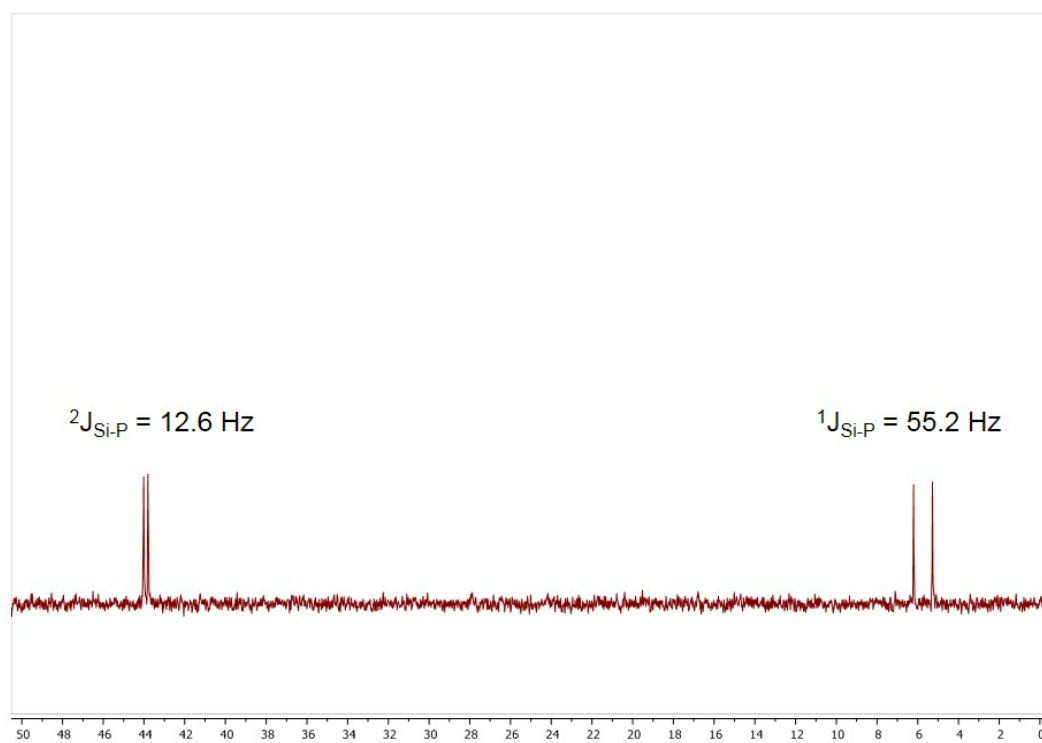


Figure S.1.19 ^1H ^{29}Si HMBC NMR of **4**

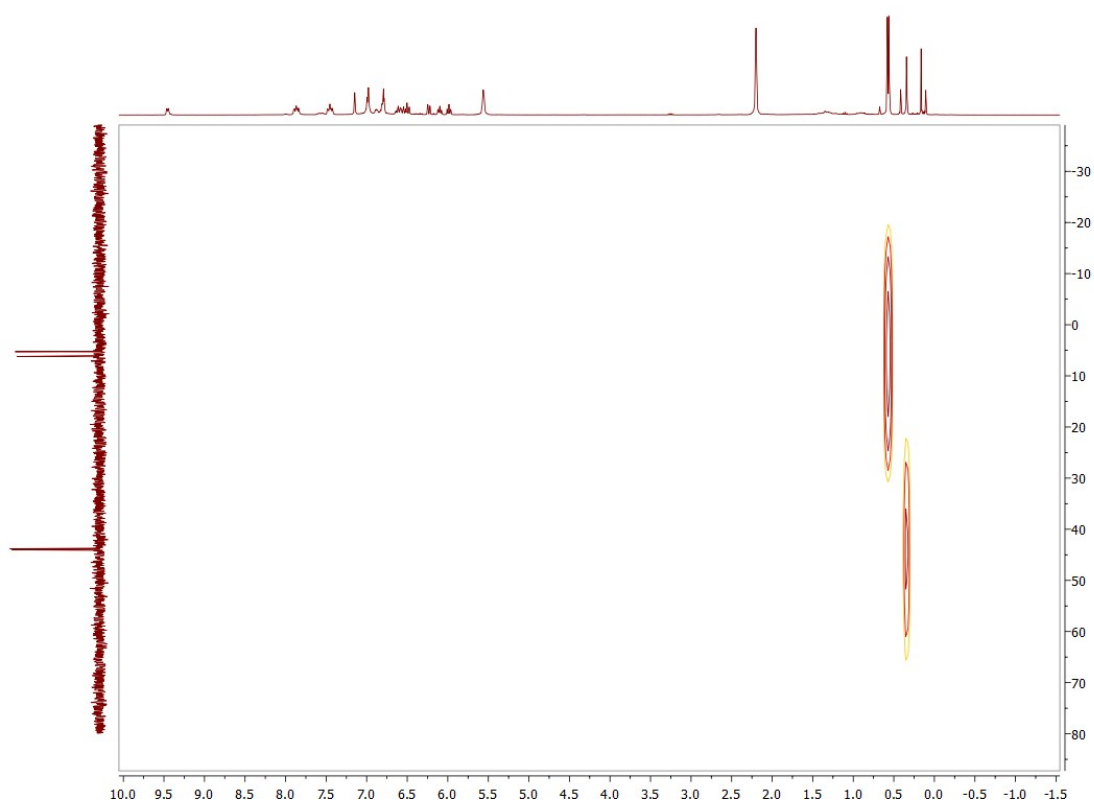


Figure S.1.20 ^1H NMR of **5**

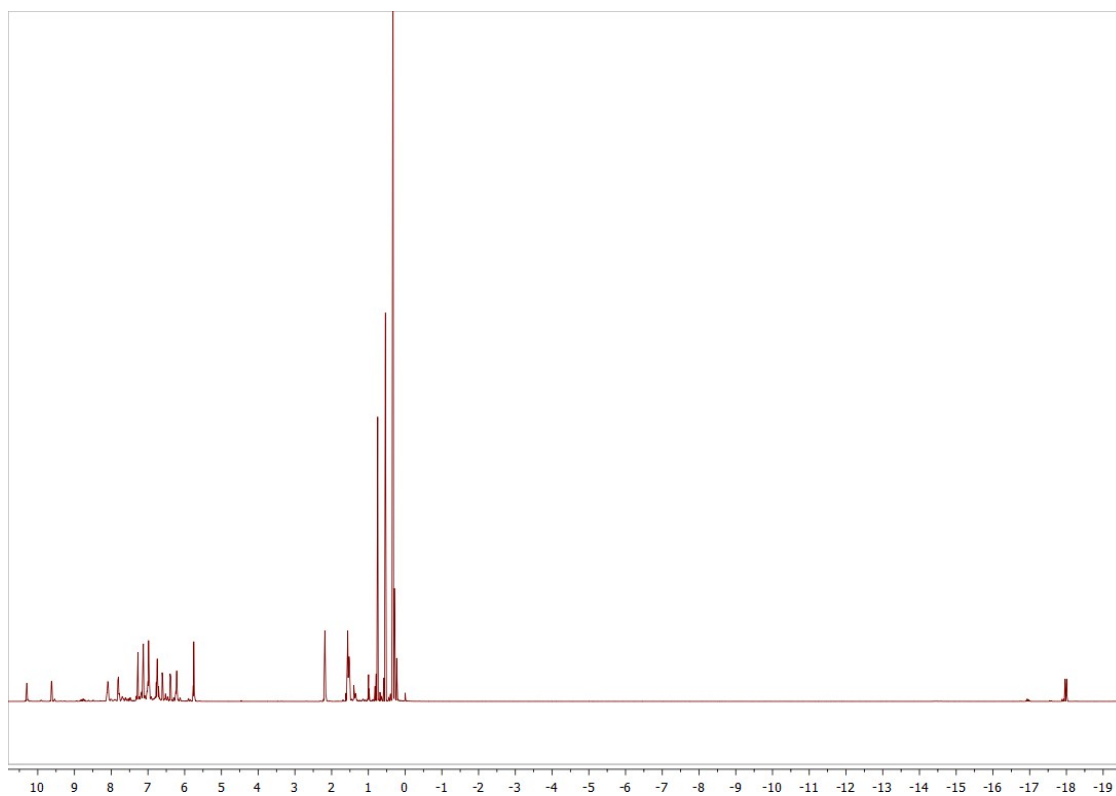


Figure S.1.21 ^{13}C APT of **5**

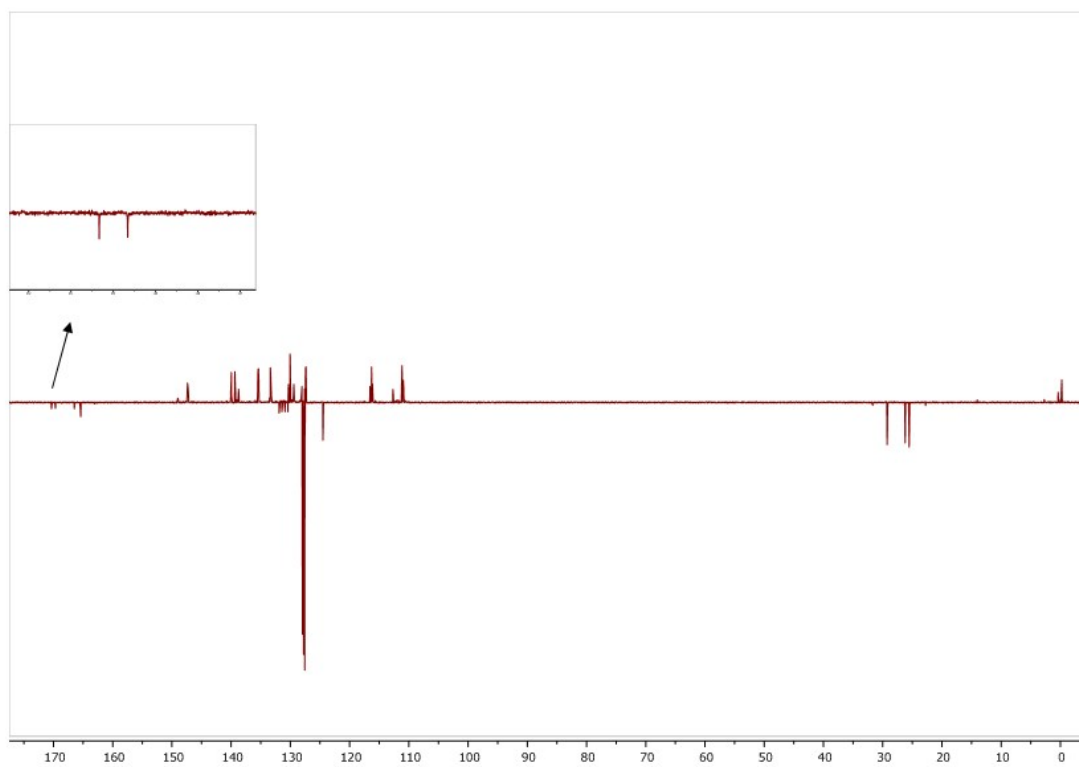


Figure S.1.22 $^{31}\text{P}\{^1\text{H}\}$ NMR of **5**

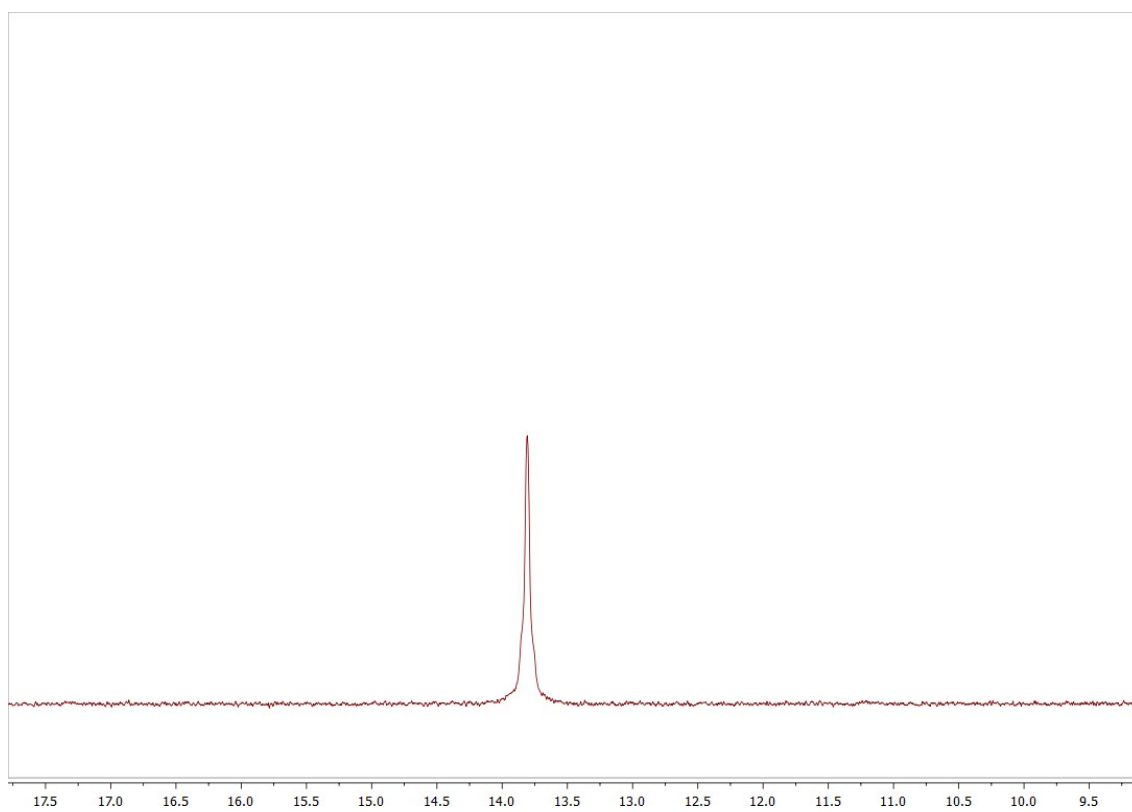


Figure S.1.23 $^{29}\text{Si}\{^1\text{H}\}$ NMR of **5**

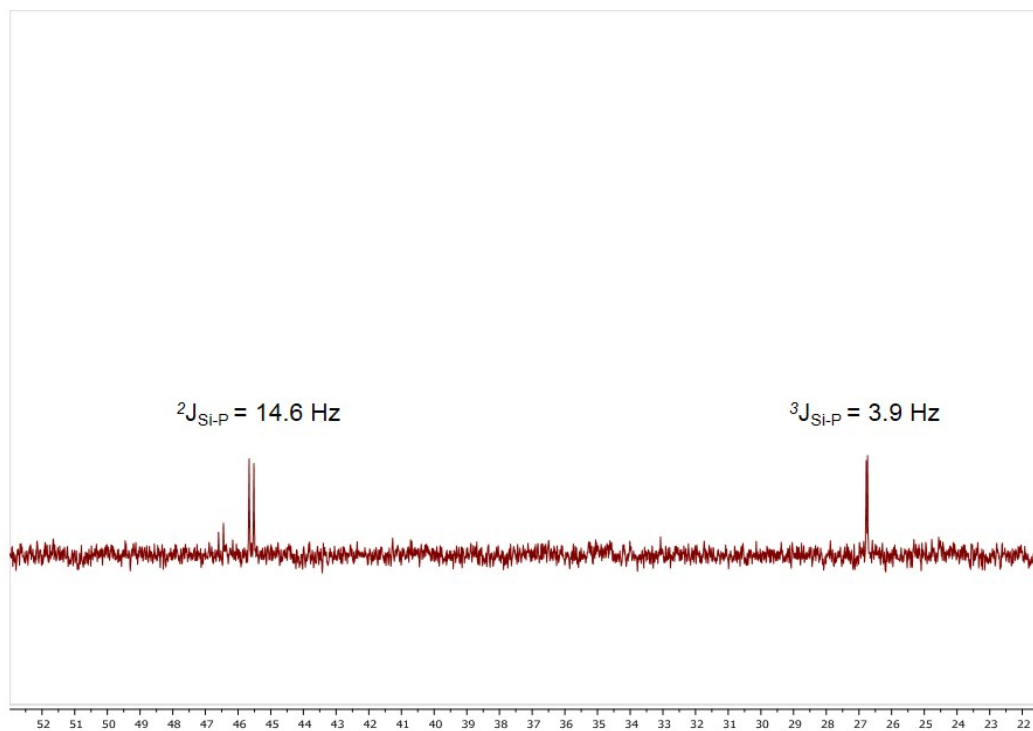
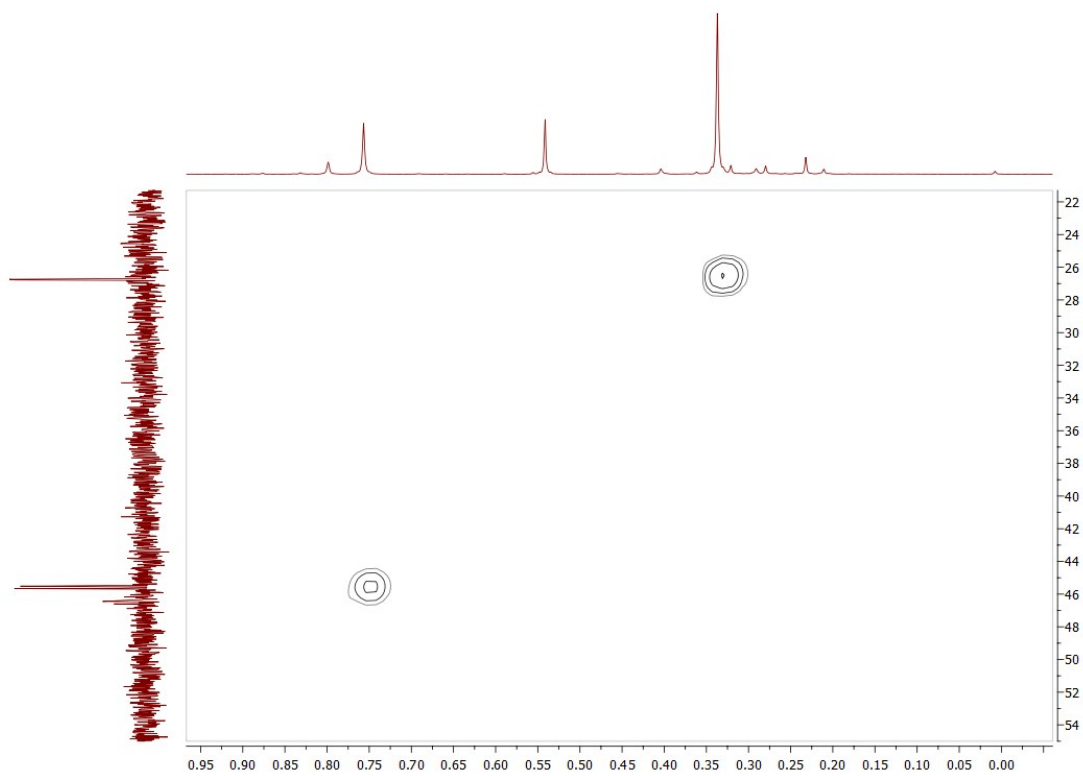


Figure S.1.24 ^1H ^{29}Si HMBC NMR of **5**



S.2. Computational Calculations

Table S2.1. Energetic values for all DFT calculated structures. Geometrical optimizations using the def2-SVP basis set, E(DZ), and single point energies using solvent corrections and def2-TZVP basis set, E(TZ,PCM). Gibbs free energy, G(TZ,PCM) and Gibbs free energy without translational entropy, G*(TZ,PCM). All absolute energies in a.u. ΔE and ΔG^* relative to **A** (X=Cl, X=OTF) and isolated molecules considering solvent and triple-Z corrections in kcal mol⁻¹.

	E(DZ)	E(TZ,PCM)	H(TZ,PCM)	G(TZ,PCM)	G*(TZ,PCM)	DE(TZ,PCM)	DG*(TZ,PCM)
A (X=Cl)	-2753.56364	-2755.46147	-2754.90790	-2755.01493	-2754.99327	0	0
TSAB (X=Cl)	-2753.52078	-2755.41682	-2754.86538	-2754.97291	-2754.95125	28.0	26.4
B(X=Cl)	-2753.53223	-2755.42829	-2754.87601	-2754.98739	-2754.96574	20.8	17.3
C (X=Cl)	-2941.99223	-2944.11060	-2943.53226	-2943.66227	-2943.64052	14.8	10.4
TSCD (X=Cl)	-2941.97661	-2944.09607	-2943.52857	-2943.64372	-2943.62198	23.9	22.1
D (X=Cl)	-2941.98285	-2944.10792	-2943.54787	-2943.65257	-2943.63082	16.4	16.5
TSDE (X=Cl)	-2941.97986	-2944.10040	-2943.53161	-2943.64582	-2943.62408	21.2	20.7
E (X=Cl)	-2942.02536	-2944.15078	-2943.58162	-2943.69520	-2943.67345	-10.5	-10.2
A (X=OTF)	-3254.37904	-3256.99681	-3256.40865	-3256.52915	-3256.50728	0.0	0.0
TSAB (X=OTF)	-3254.34355	-3256.95499	-3256.36796	-3256.48871	-3256.46684	26.2	25.4
B (X=OTF)	-3254.35486	-3256.96839	-3256.38093	-3256.50878	-3256.47378	17.8	21.0
C (X=OTF)	-3442.81470	-3445.65058	-3445.04618	-3445.18412	-3445.16218	11.8	5.6
TSCD (X=OTF)	-3442.80251	-3445.63659	-3445.03316	-3445.16673	-3445.14479	20.6	16.5
D (X=OTF)	-3442.81542	-3445.65363	-3445.04882	-3445.18312	-3445.16117	9.9	6.3
TSDE (X=OTF)	-3442.80959	-3445.64529	-3445.04114	-3445.16981	-3445.14786	15.2	14.6
E (X=OTF)	-3442.84483	-3445.68879	-3445.08412	-3445.21459	-3445.19264	-12.1	-13.5
CO2	-188.44468	-188.67264	-188.65729	-188.68157	-188.66386		
A_H (X=Cl)	-2753.56364	-2755.46147	-2754.90790	-2755.01493	-2754.99327	0	0
TSAB_H (X=Cl)	-2753.50726	-2755.40450	-2754.85255	-2754.95846	-2754.93680	35.7	35.4
B_H (X=Cl)	-2753.52305	-2755.41827	-2754.86607	-2754.97205	-2754.95038	27.1	26.9
C_H (X=Cl)	-2941.98611	-2944.10477	-2943.53569	-2943.65071	-2943.62896	18.4	17.7
TSCD_H (X=Cl)	-2941.97416	-2944.09222	-2943.52423	-2943.63587	-2943.61412	26.3	27.0
D_H (X=Cl)	-2941.98128	-2944.10792	-2943.53757	-2943.65282	-2943.63239	16.4	15.5
TSDE_H (X=Cl)	-2941.97351	-2944.09462	-2943.52587	-2943.63922	-2943.61747	24.8	24.9
E (X=OTF)	-2942.02536	-2944.15078	-2943.58162	-2943.69519	-2943.67345	-10.5	-10.2
A_H (X=OTF)	-3254.37904	-3256.99681	-3256.41074	-3256.53420	-3256.51233	0.0	-3.2
TSAB_H (X=OTF)	-3254.32435	-3256.94164	-3256.35406	-3256.47578	-3256.45390	34.6	33.5
B_H (X=OTF)	-3254.34069	-3256.95585	-3256.36694	-3256.49315	-3256.47128	25.7	22.6
C_H (X=OTF)	-3442.80430	-3445.64314	-3445.03749	-3445.17130	-3445.14936	16.5	13.7
TSCD_H (X=OTF)	-3442.79442	-3445.63221	-3445.02786	-3445.15841	-3445.13646	23.4	21.8
D_H (X=OTF)	-3442.79956	-3445.64097	-3445.03530	-3445.16594	-3445.14399	17.9	17.0
TSDE_H (X=OTF)	-3442.79260	-3445.63363	-3445.02924	-3445.15738	-3445.13543	22.5	22.4
E (X=OTF)	-3442.84483	-3445.68879	-3445.08412	-3445.21459	-3445.19264	-12.1	-13.5

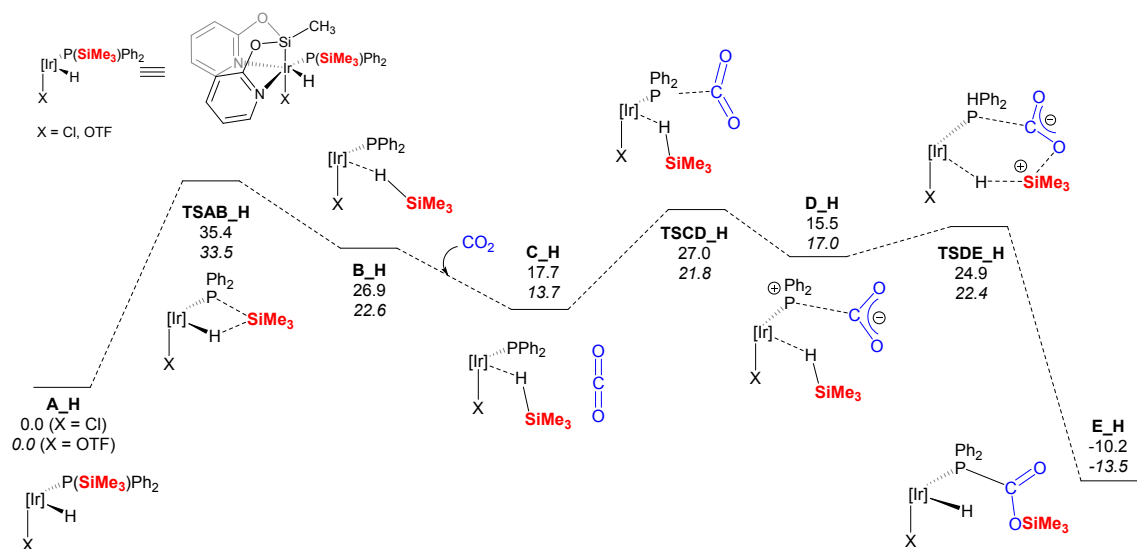
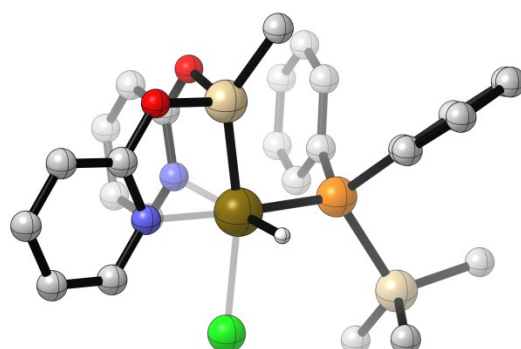
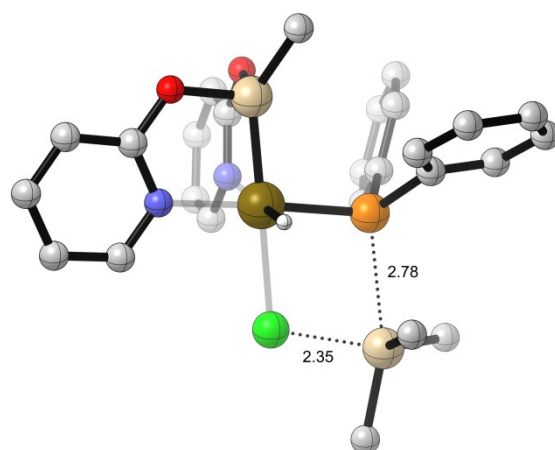


Figure S2.1. Relative Gibbs free energies (to **A_H** and isolated molecules, in kcal mol⁻¹) for the carboxylation of P(SiMe₃)Ph₂ assisted by the hydride ligand using complexes **1** (normal font) or **2** (italic font) as catalyst precursors.

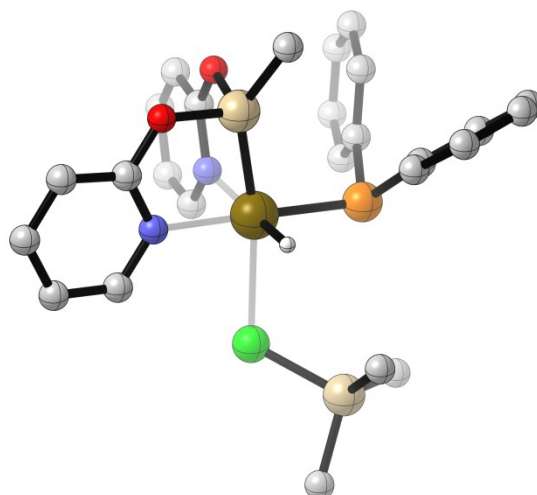
Figure S2.2. Geometrical representation for the DFT optimized structures. Hydrogen atoms bonded to carbon atoms are omitted for clarity.



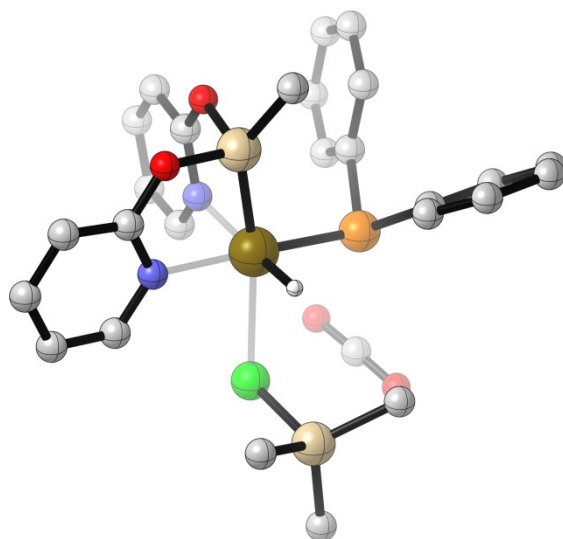
A(Cl)



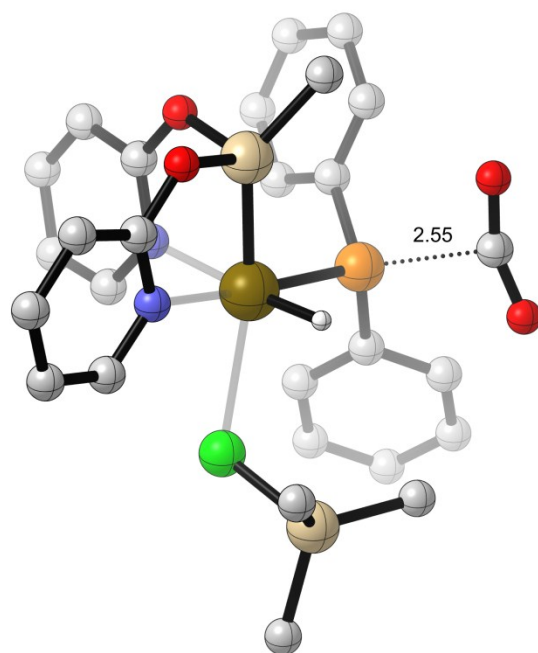
TSAB(Cl)



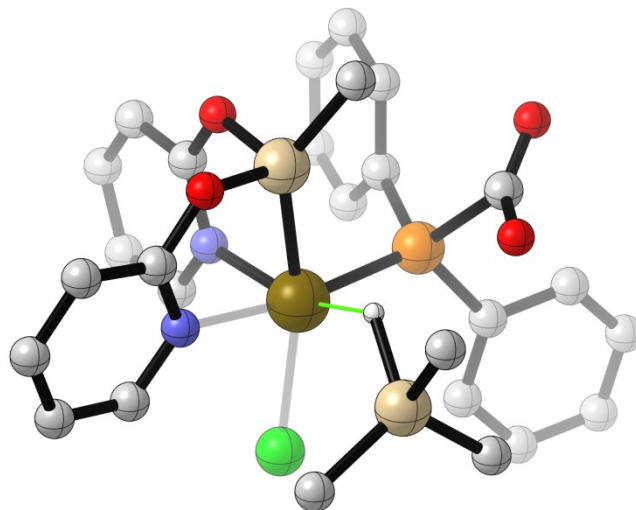
B(Cl)



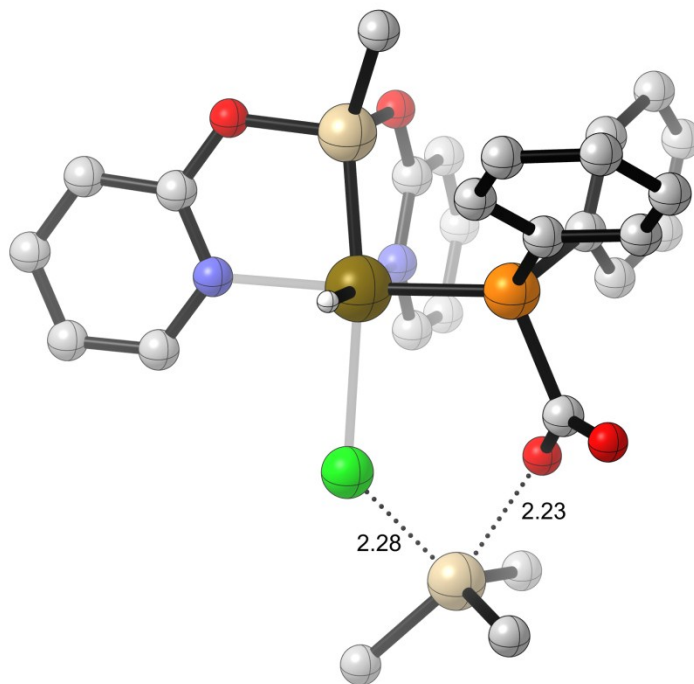
c(Cl)



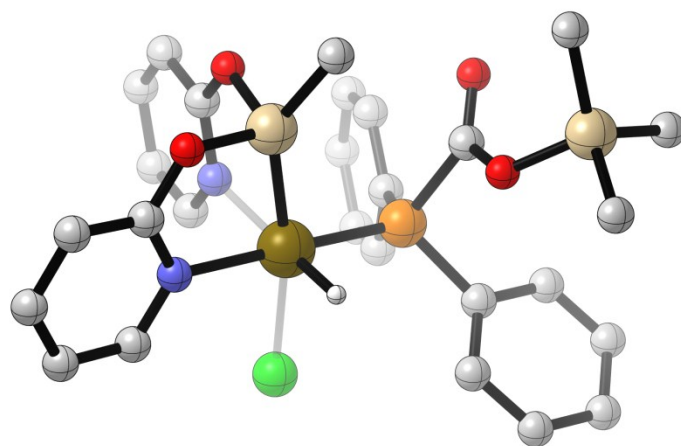
TSCD(Cl)



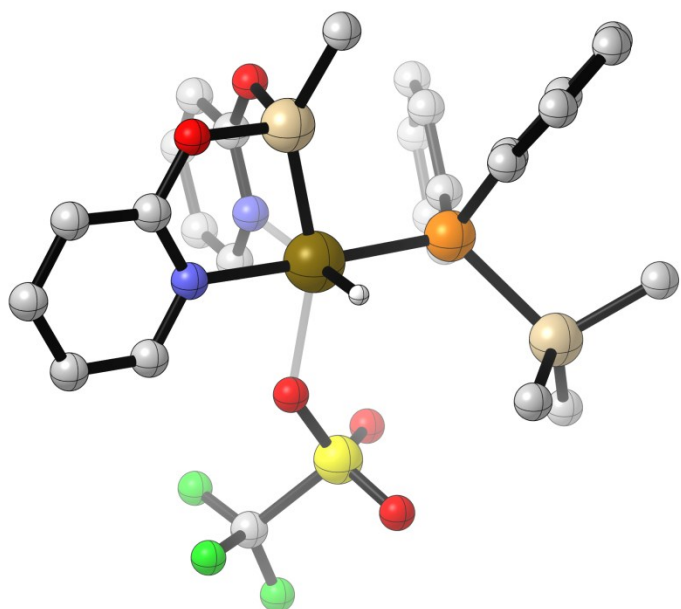
D(Cl)



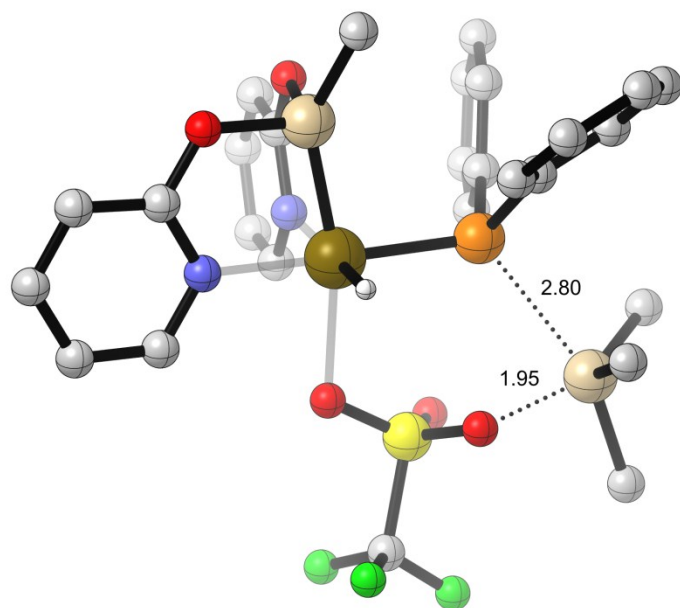
TSDE(Cl)



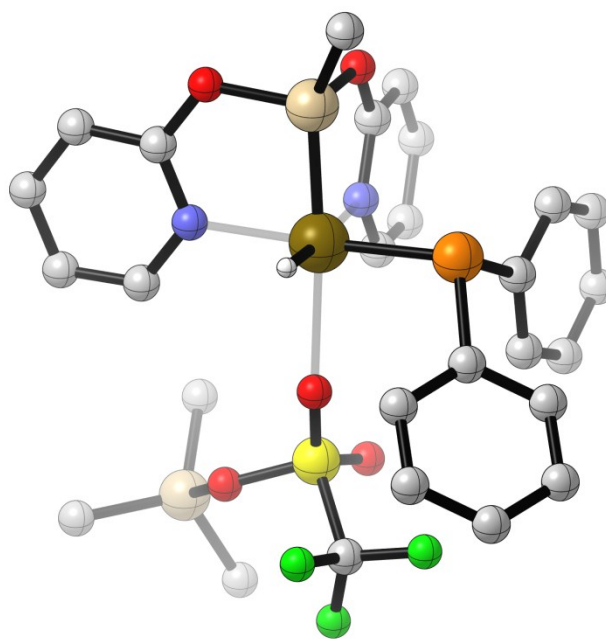
E(Cl)



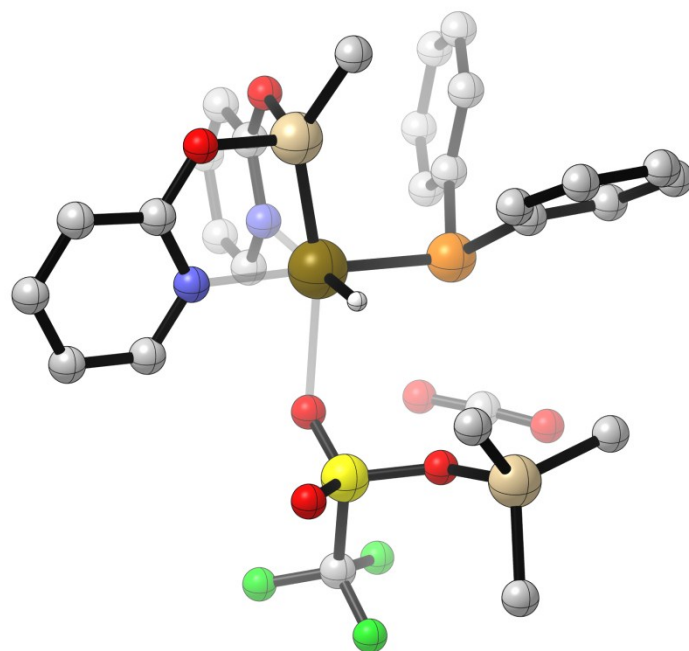
A(OTF)



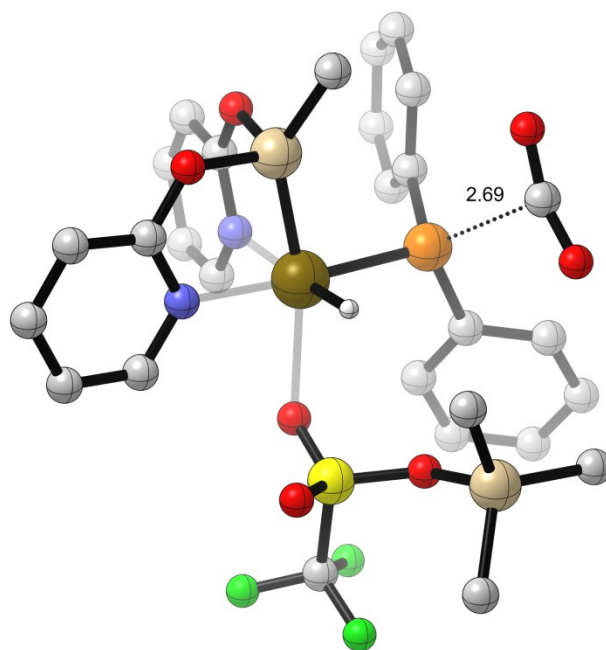
TSAB(OTF)



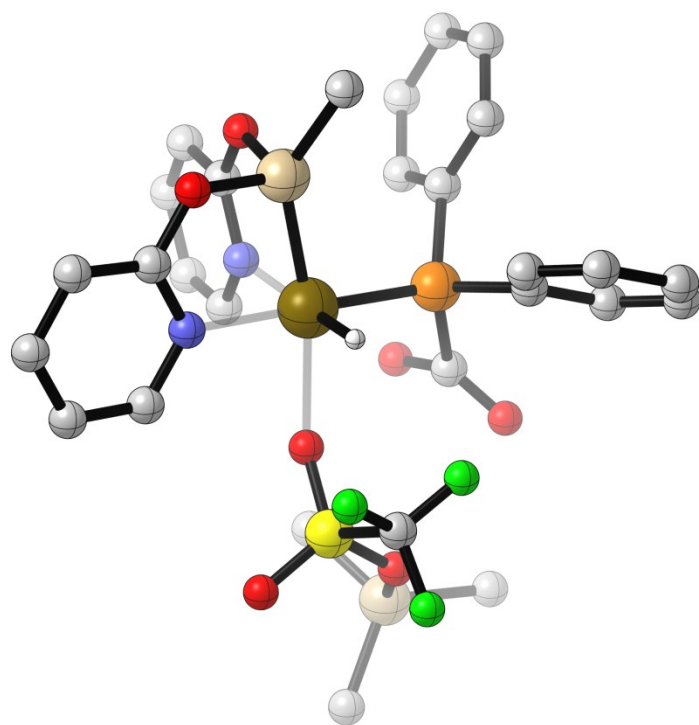
B(OTF)



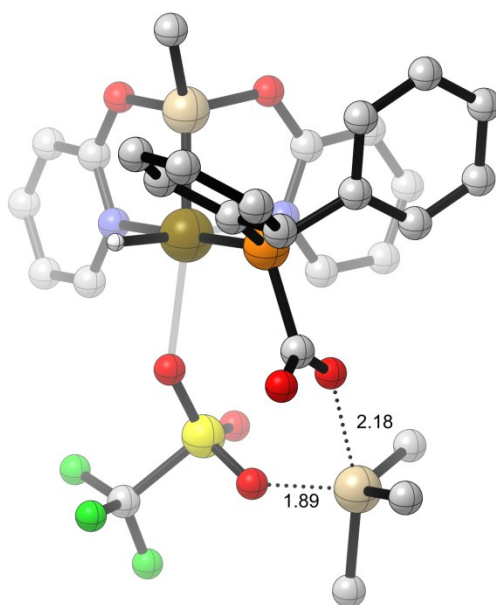
C(OTf)



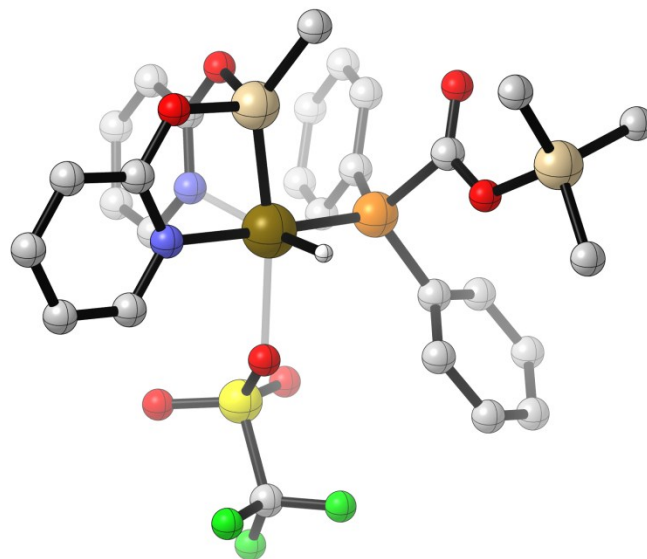
TSCD(OTf)



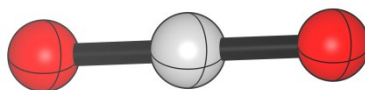
D(OTF)



TSDE(OTF)



E(OTF)



CO₂

Table S2.2. Cartesian coordinates (in Å) for all calculated structures along the X (X= Cl, X= OTF) assisted pathways

A (X= Cl)	6	-4.476914	-1.710519	-2.139029			
14	1.000008	-0.532013	-1.872506	1	-4.111020	0.153527	-1.127731
6	0.160260	-1.184963	-3.399612	6	-2.790051	-3.418679	-1.872170
1	0.688831	-0.830978	-4.298880	1	-1.072661	-2.867886	-0.675844
1	-0.887152	-0.853562	-3.446141	6	-4.010108	-3.000856	-2.408462
1	0.164622	-2.285125	-3.393411	1	-5.432175	-1.375401	-2.550411
7	1.311503	1.579966	0.063219	1	-2.417859	-4.425930	-2.074350
6	1.352311	2.035263	-1.208096	1	-4.597170	-3.677513	-3.034023
8	1.147213	1.185559	-2.206591	6	-1.836464	1.542924	-0.309217
6	1.605403	3.390828	-1.484979	6	-1.731165	2.622674	0.581730
1	1.610669	3.715940	-2.524935	6	-1.997367	1.809453	-1.678249
6	1.839798	4.258347	-0.428423	6	-1.808168	3.936854	0.118185
1	2.037744	5.315028	-0.624732	1	-1.554074	2.436123	1.640650
6	1.822370	3.769597	0.885443	6	-2.077995	3.124193	-2.140055
1	2.009428	4.420388	1.740473	1	-2.048867	0.988036	-2.393103
6	1.551794	2.423370	1.084041	6	-1.986972	4.192096	-1.243725
1	1.502542	1.963700	2.076038	1	-1.714555	4.764352	0.825082
7	2.847325	-1.079381	0.261067	1	-2.200151	3.313297	-3.209185
6	3.402698	-1.246403	-0.964987	1	-2.043663	5.220770	-1.607326
8	2.656780	-1.080628	-2.045992				
6	4.758688	-1.593988	-1.104648	TSAB (X=Cl)			
1	5.157196	-1.714596	-2.111838	14	1.174366	0.456874	-1.959964
6	5.532726	-1.767452	0.032970	7	1.328463	1.355284	0.763537
1	6.587393	-2.038116	-0.059807	6	1.481177	2.364654	-0.123018
6	4.949502	-1.590526	1.295024	8	1.351417	2.111182	-1.418749
1	5.522974	-1.716073	2.214073	6	1.779756	3.670931	0.304026
6	3.607672	-1.247080	1.363377	1	1.868716	4.453796	-0.448489
1	3.083397	-1.085490	2.309105	6	1.951479	3.912332	1.658239
77	0.735300	-0.573601	0.368597	1	2.183882	4.921015	2.007927
1	0.398273	-2.116254	0.533278	6	1.823253	2.854485	2.569209
15	-1.514868	-0.158452	0.313294	1	1.953425	3.003009	3.641711
14	-2.707639	-0.469681	2.272035	6	1.505140	1.598525	2.075613
6	-2.207128	-2.191858	2.819815	1	1.355015	0.742148	2.735723
1	-1.149681	-2.178308	3.122083	7	2.778790	-1.178674	-0.208921
1	-2.826512	-2.512012	3.674373	6	3.465511	-0.756055	-1.298936
1	-2.337874	-2.922537	2.006548	8	2.845181	-0.032117	-2.217890
6	-2.362169	0.837128	3.579213	6	4.825508	-1.079123	-1.465554
1	-1.279782	0.966083	3.716409	1	5.336374	-0.715176	-2.356925
1	-2.835213	1.799810	3.332770	6	5.462969	-1.842143	-0.498826
1	-2.793541	0.486487	4.532614	1	6.518105	-2.100858	-0.615319
6	-4.543876	-0.401065	1.836177	6	4.743274	-2.276775	0.624054
1	-4.844402	-1.212796	1.158552	1	5.207891	-2.880047	1.404595
1	-5.128946	-0.496138	2.767133	6	3.406933	-1.921549	0.724978
1	-4.813770	0.560256	1.370384	1	2.789609	-2.231786	1.570417
17	0.869394	-0.307550	2.899338	77	0.681320	-0.622906	-0.072955
6	-2.490774	-1.251219	-0.809916	1	0.273088	-2.005829	-0.749740
6	-3.728336	-0.845597	-1.339043	15	-1.575647	-0.160994	0.108386
6	-2.033355	-2.549607	-1.082151	14	-2.197495	-1.912113	2.181514
				17	0.115489	-1.560960	2.349908

6	0.457595	0.619953	-3.663606	1	-1.409880	-0.381084	2.745666
1	1.038747	1.348468	-4.250523	7	-2.677745	-0.356429	-0.952179
1	0.474614	-0.350829	-4.180791	6	-2.783091	-1.328895	-1.890399
1	-0.587761	0.956341	-3.604702	8	-1.687319	-1.912211	-2.349415
6	-2.076562	-2.967021	3.766538	6	-4.038457	-1.726936	-2.389047
1	-1.792913	-2.363969	4.644381	1	-4.066866	-2.515910	-3.140547
1	-3.067503	-3.411524	3.969022	6	-5.183560	-1.107643	-1.912464
1	-1.345099	-3.783457	3.665673	1	-6.164669	-1.405257	-2.290213
6	-2.572390	-3.130614	0.795146	6	-5.067085	-0.099199	-0.944916
1	-1.662852	-3.333907	0.210047	1	-5.941405	0.415394	-0.544706
1	-2.930649	-4.082423	1.220041	6	-3.798467	0.239790	-0.498806
1	-3.330973	-2.733616	0.105880	1	-3.647915	1.021510	0.247266
6	-3.553771	-0.677321	2.652595	77	-0.631435	0.167538	-0.309351
1	-4.064152	-0.280634	1.763353	1	-0.597779	1.300585	-1.428867
1	-4.288522	-1.171048	3.311788	15	1.555207	0.802888	0.284739
1	-3.137849	0.178118	3.206543	14	-0.531299	3.879250	1.474662
6	-2.603249	-0.493692	-1.375278	6	1.076329	-1.831045	-3.031653
6	-3.915903	0.013316	-1.441937	1	1.020219	-2.885053	-3.346232
6	-2.168455	-1.350699	-2.399619	1	0.835014	-1.186758	-3.889726
6	-4.757747	-0.314778	-2.505193	1	2.102220	-1.598303	-2.715189
1	-4.278164	0.679411	-0.655011	6	-1.788577	5.158953	2.025095
6	-3.014218	-1.684646	-3.460631	1	-2.157788	4.946796	3.040618
1	-1.157445	-1.756805	-2.353866	1	-1.324299	6.159796	2.032402
6	-4.310457	-1.167023	-3.520793	1	-2.651996	5.188510	1.342093
1	-5.770574	0.094869	-2.540172	6	-0.011898	4.143843	-0.296581
1	-2.654235	-2.351705	-4.248299	1	-0.868199	4.041836	-0.979821
1	-4.969894	-1.425379	-4.352866	1	0.402627	5.161071	-0.401680
6	-1.782601	1.655922	0.333419	1	0.756852	3.418180	-0.594677
6	-1.642463	2.196899	1.622227	6	0.887213	3.719378	2.675750
6	-1.952537	2.540637	-0.745704	1	1.558758	2.918879	2.327672
6	-1.668594	3.577168	1.829005	1	1.451004	4.666692	2.720455
1	-1.484869	1.526629	2.469120	1	0.528765	3.479777	3.688965
6	-1.986943	3.920755	-0.539885	6	2.640111	1.019937	-1.194259
1	-2.050711	2.144217	-1.757865	6	4.041556	0.951546	-1.047187
6	-1.844560	4.445385	0.748395	6	2.136224	1.400203	-2.451922
1	-1.545964	3.975730	2.839097	6	4.896239	1.220121	-2.116475
1	-2.115584	4.591531	-1.393274	1	4.467527	0.679162	-0.078717
1	-1.866610	5.526115	0.908136	6	2.992617	1.684878	-3.519264
B (X= CI)				1	1.056435	1.460119	-2.591990
14	-0.123417	-1.521686	-1.652587	6	4.377121	1.589003	-3.362614
7	-0.685628	-1.506403	1.169088	1	5.977918	1.146182	-1.974277
6	-0.232157	-2.704945	0.736252	1	2.569929	1.973252	-4.485743
8	0.115109	-2.843608	-0.536576	1	5.046295	1.800487	-4.200238
6	-0.124219	-3.803163	1.607715	6	2.324710	-0.672453	1.099545
1	0.267983	-4.739496	1.212528	6	2.177840	-0.785301	2.493578
6	-0.511029	-3.653310	2.929953	6	2.979299	-1.716130	0.422157
1	-0.429692	-4.494744	3.621996	6	2.644958	-1.905269	3.183989
6	-0.999253	-2.414467	3.368552	1	1.676551	0.019165	3.038797
1	-1.312847	-2.254984	4.400779	6	3.460771	-2.831210	1.109993
6	-1.062545	-1.374050	2.454761	1	3.112368	-1.656997	-0.658738

6 3.291668 -2.934395 2.494254
 1 2.505641 -1.973104 4.266094
 1 3.962177 -3.631044 0.558532
 1 3.663218 -3.810569 3.031457
 17 -1.633314 2.025718 1.587026
 C (X= CI)
 14 0.445059 -1.539776 -1.766977
 6 1.485710 -1.303210 -3.284085
 1 1.840521 -2.281491 -3.644844
 1 2.350000 -0.659094 -3.077828
 1 0.885083 -0.828944 -4.074375
 7 0.289535 -1.785693 1.099424
 6 1.111570 -2.703821 0.540383
 8 1.306277 -2.685780 -0.772275
 6 1.760075 -3.674742 1.323322
 1 2.422737 -4.381540 0.825311
 6 1.545693 -3.687497 2.692540
 1 2.047078 -4.430495 3.317173
 6 0.691663 -2.734941 3.266075
 1 0.504135 -2.704801 4.339800
 6 0.091229 -1.805349 2.431213
 1 -0.558912 -1.023768 2.827372
 7 -2.246771 -1.600721 -0.715402
 6 -2.060888 -2.478515 -1.730831
 8 -0.897360 -2.506854 -2.358645
 6 -3.084594 -3.359904 -2.129697
 1 -2.882512 -4.043832 -2.953990
 6 -4.300451 -3.330055 -1.464582
 1 -5.104294 -4.007688 -1.762034
 6 -4.482326 -2.427363 -0.406730
 1 -5.420118 -2.374996 0.147579
 6 -3.430328 -1.588712 -0.070528
 1 -3.515182 -0.866903 0.742417
 8 -0.068535 3.554812 2.895991
 77 -0.546942 -0.245835 -0.261527
 6 0.241316 2.505051 3.290343
 8 0.536801 1.481075 3.757550
 1 -1.113714 0.803856 -1.321876
 15 1.215388 1.236337 0.232867
 14 -2.850161 2.753038 0.581201
 17 -2.083254 1.071248 1.704048
 6 -3.710098 3.777784 1.892846
 1 -4.485998 3.199489 2.417965
 1 -2.977845 4.136473 2.632921
 1 -4.188389 4.657765 1.430654
 6 -4.041367 2.000837 -0.649938
 1 -4.486211 2.794915 -1.272938
 1 -3.505585 1.301125 -1.308688
 1 -4.857672 1.459585 -0.147388
 6 -1.447888 3.681780 -0.214035

1 -1.002191 3.113536 -1.040397
 1 -1.841651 4.633426 -0.611162
 1 -0.657886 3.905477 0.515676
 6 2.699056 0.188229 0.626004
 6 2.903915 -0.196824 1.963297
 6 3.606042 -0.283860 -0.338792
 6 3.950767 -1.050642 2.316661
 1 2.226564 0.172023 2.734054
 6 4.658237 -1.131450 0.012060
 1 3.487981 0.019709 -1.379629
 6 4.832256 -1.526002 1.342135
 1 4.077707 -1.344977 3.361802
 1 5.344272 -1.490010 -0.760075
 1 5.653109 -2.193229 1.616833
 6 1.846402 2.110130 -1.271186
 6 1.185970 2.133309 -2.510771
 6 3.021182 2.879114 -1.140771
 6 1.679129 2.890019 -3.579426
 1 0.277668 1.543778 -2.635501
 6 3.522694 3.622524 -2.208356
 1 3.550602 2.886431 -0.184194
 6 2.851381 3.634221 -3.437040
 1 1.144815 2.887400 -4.533575
 1 4.440625 4.202657 -2.080588
 1 3.240843 4.219678 -4.273594
 TSCD (X= CI)
 14 -1.770146 -1.255602 1.302242
 6 -2.615659 -0.872268 2.908550
 1 -3.590938 -0.403953 2.713606
 1 -2.005467 -0.184004 3.508994
 1 -2.768233 -1.808777 3.466148
 7 -1.332390 -0.602522 -1.490201
 6 -2.638161 -0.782094 -1.187767
 8 -2.984461 -1.048301 0.061371
 6 -3.636555 -0.694107 -2.176809
 1 -4.674270 -0.829793 -1.873992
 6 -3.267818 -0.423884 -3.483910
 1 -4.029906 -0.343649 -4.262638
 6 -1.909270 -0.258199 -3.796707
 1 -1.575697 -0.054959 -4.814849
 6 -0.985048 -0.362554 -2.769353
 1 0.084545 -0.252772 -2.958496
 7 0.264383 -2.834207 -0.029445
 6 -0.648741 -3.592005 0.624753
 8 -1.586543 -2.998437 1.340457
 6 -0.618733 -4.998481 0.557310
 1 -1.376441 -5.554829 1.108912
 6 0.359775 -5.619147 -0.202538
 1 0.396806 -6.709246 -0.265399
 6 1.292391 -4.830519 -0.891644

1 2.074445 -5.274573 -1.508616
 6 1.202869 -3.452024 -0.775871
 1 1.900968 -2.794114 -1.292272
 8 1.507873 2.284492 3.270241
 77 0.097584 -0.635179 0.231512
 6 0.371795 1.947451 3.284576
 8 -0.641528 1.641701 3.819406
 1 1.029031 -0.690681 1.523438
 15 -0.157478 1.638192 0.812216
 14 4.003267 -0.266316 0.038016
 17 2.337027 -0.325592 -1.340376
 6 3.854267 1.291328 1.035649
 1 3.812229 2.173095 0.379370
 1 2.962015 1.302459 1.676733
 1 4.741899 1.384332 1.685028
 6 5.492486 -0.242427 -1.100216
 1 6.419608 -0.223921 -0.502653
 1 5.520823 -1.132208 -1.748271
 1 5.481832 0.653775 -1.740036
 6 3.901613 -1.844082 1.034781
 1 4.006085 -2.734393 0.396075
 1 4.711440 -1.859865 1.783435
 1 2.937130 -1.898615 1.560583
 6 -1.885946 2.136063 0.359777
 6 -2.303602 2.432458 -0.948554
 6 -2.842563 2.175884 1.389737
 6 -3.640521 2.724344 -1.224042
 1 -1.582655 2.430533 -1.765617
 6 -4.182592 2.458315 1.112258
 1 -2.526121 1.990708 2.416781
 6 -4.589093 2.727793 -0.196922
 1 -3.943811 2.943137 -2.251268
 1 -4.910670 2.477852 1.927538
 1 -5.636679 2.950187 -0.414881
 6 0.852022 2.754649 -0.269228
 6 1.517350 3.827018 0.349555
 6 1.003248 2.593645 -1.656232
 6 2.307838 4.707710 -0.394752
 1 1.434392 3.953887 1.429842
 6 1.790614 3.471400 -2.403602
 1 0.506834 1.765866 -2.158913
 6 2.449154 4.531875 -1.773734
 1 2.819565 5.532334 0.108139
 1 1.893625 3.324602 -3.482035
 1 3.069241 5.218010 -2.356251
 D (X= CI)
 14 -1.151985 0.833262 1.791080
 6 -0.721297 0.662466 3.576716
 1 -1.239280 1.438145 4.162042

1 0.362495 0.731046 3.741952
 1 -1.041729 -0.331496 3.923242
 7 -0.431964 1.772058 -0.852509
 6 -0.544967 2.772176 0.060644
 8 -0.834800 2.481538 1.319568
 6 -0.358743 4.112405 -0.314530
 1 -0.436759 4.874336 0.459790
 6 -0.081152 4.413409 -1.637914
 1 0.070459 5.451879 -1.940924
 6 0.005450 3.376359 -2.576235
 1 0.219283 3.570566 -3.627524
 6 -0.169865 2.073503 -2.143765
 1 -0.103797 1.211041 -2.810380
 7 -2.802882 0.045937 -0.438528
 6 -3.520394 0.474106 0.626868
 8 -2.892671 0.736302 1.764192
 6 -4.912588 0.649537 0.544039
 1 -5.444728 0.981870 1.435078
 6 -5.549316 0.409205 -0.664772
 1 -6.630350 0.543755 -0.748621
 6 -4.792450 0.006011 -1.773439
 1 -5.253037 -0.181214 -2.743856
 6 -3.425752 -0.163690 -1.616732
 1 -2.772184 -0.491247 -2.428803
 8 1.029954 -2.060508 2.431130
 77 -0.620152 -0.227152 -0.156204
 6 1.755076 -1.069002 2.335368
 8 2.511687 -0.467044 3.088701
 1 -0.716077 -1.554019 0.820405
 15 1.626904 -0.319492 0.492345
 14 -1.139048 -3.034984 0.336637
 17 -0.472103 -1.146346 -2.543307
 6 0.394727 -3.908305 -0.252302
 1 0.652067 -3.589967 -1.271314
 1 1.229730 -3.687616 0.426090
 1 0.211598 -4.996186 -0.252222
 6 -2.607822 -3.252417 -0.805702
 1 -2.853361 -4.328956 -0.805086
 1 -3.494081 -2.708446 -0.448750
 1 -2.372055 -2.943625 -1.831740
 6 -1.669261 -3.476426 2.083264
 1 -2.524938 -2.857252 2.399008
 1 -1.985483 -4.532919 2.115635
 1 -0.832204 -3.318436 2.776431
 6 2.352573 1.364641 0.431591
 6 2.798949 1.885602 -0.793799
 6 2.407451 2.167143 1.580729
 6 3.269804 3.195799 -0.874193
 1 2.772916 1.260978 -1.689336
 6 2.882867 3.478616 1.496056

1	2.118096	1.746179	2.541902	14	-0.904632	4.116778	-0.374494
6	3.308135	3.997853	0.271362	6	-0.774227	4.510671	1.465797
1	3.607343	3.592758	-1.834657	1	0.256159	4.801651	1.712846
1	2.927661	4.094046	2.397846	1	-1.473297	5.314480	1.744375
1	3.678698	5.024095	0.209167	1	-1.009092	3.621018	2.068880
6	2.882313	-1.300419	-0.418448	6	-2.625514	4.817508	-0.826998
6	4.050445	-1.631620	0.294281	1	-2.614254	5.909582	-0.657700
6	2.761162	-1.677894	-1.761851	1	-2.888199	4.640529	-1.881906
6	5.075138	-2.339861	-0.333484	1	-3.425224	4.389997	-0.200306
1	4.154204	-1.329103	1.338830	6	0.223684	4.914910	-1.640885
6	3.794269	-2.386820	-2.383225	1	0.019076	4.473269	-2.629810
1	1.853063	-1.435170	-2.313053	1	-0.029231	5.987138	-1.701450
6	4.949388	-2.720845	-1.673652	1	1.290346	4.782246	-1.425395
1	5.976171	-2.596472	0.228912	17	-1.622444	2.045660	-1.002737
1	3.687991	-2.682325	-3.430023	6	2.843088	-0.349460	-1.436629
1	5.752364	-3.278691	-2.162012	6	4.173463	0.067099	-1.253361
TSDE (X= CI)				6	2.541224	-1.246137	-2.469694
14	-0.147393	-2.540701	-0.107094	6	5.183351	-0.427922	-2.077131
6	1.127420	-3.805293	-0.573603	1	4.413248	0.787108	-0.469790
1	0.971866	-4.716756	0.025046	6	3.555819	-1.740748	-3.294198
1	2.146145	-3.433455	-0.401217	1	1.506013	-1.547723	-2.629646
1	1.031320	-4.060468	-1.639316	6	4.877660	-1.336410	-3.096759
7	-0.982242	-0.373019	1.593450	1	6.214133	-0.097675	-1.928366
6	-0.598235	-1.462766	2.293155	1	3.309427	-2.441597	-4.095503
8	-0.141633	-2.523346	1.634635	1	5.671144	-1.722433	-3.741426
6	-0.671701	-1.491730	3.695996	6	2.179129	0.019321	1.345468
1	-0.334188	-2.387743	4.215587	6	1.872656	0.904175	2.392651
6	-1.159926	-0.378241	4.363202	6	2.879052	-1.162472	1.632219
1	-1.218540	-0.378435	5.454146	6	2.252515	0.600454	3.700665
6	-1.573706	0.742496	3.629119	1	1.335891	1.826506	2.169081
1	-1.965981	1.635248	4.117173	6	3.253820	-1.463870	2.942942
6	-1.466536	0.698405	2.247478	1	3.139459	-1.849961	0.826278
1	-1.759551	1.536661	1.614973	6	2.938011	-0.584671	3.982038
7	-2.599866	-1.250650	-0.911437	1	2.005390	1.295509	4.506683
6	-2.726769	-2.594639	-0.786434	1	3.795660	-2.389571	3.151253
8	-1.662010	-3.321177	-0.483157	1	3.230074	-0.820912	5.008169
6	-3.965343	-3.233917	-0.974491	E (X= CI)			
1	-4.006889	-4.316827	-0.859393	14	1.077355	-1.525915	-1.417563
6	-5.077613	-2.471515	-1.295369	6	0.002213	-2.502032	-2.577451
1	-6.046986	-2.952499	-1.445530	1	0.610093	-2.913086	-3.398742
6	-4.941713	-1.082363	-1.422469	1	-0.777168	-1.855306	-3.005643
1	-5.788752	-0.443310	-1.673580	1	-0.480906	-3.332024	-2.040756
6	-3.691564	-0.518478	-1.222354	7	2.069913	1.074724	-0.625144
1	-3.532305	0.556525	-1.309024	6	2.245774	0.829809	-1.941574
8	0.813263	2.814067	0.208663	8	1.788589	-0.306339	-2.457586
77	-0.601959	-0.401031	-0.614537	6	2.886890	1.763922	-2.774422
6	1.700616	2.265176	-0.509785	1	3.007081	1.522901	-3.830546
8	2.563154	2.725925	-1.231076	6	3.330730	2.957772	-2.223208
1	-0.335678	-0.503156	-2.178634	1	3.822805	3.700346	-2.856282
15	1.551609	0.347171	-0.353893	6	3.139698	3.202989	-0.856891

1 3.467717 4.132505 -0.391026
6 2.507189 2.231752 -0.094580
1 2.312355 2.345867 0.975731
7 2.714988 -1.519261 0.929307
6 3.139934 -2.417476 0.006370
8 2.441046 -2.583851 -1.104718
6 4.310615 -3.168599 0.215390
1 4.611593 -3.877459 -0.555755
6 5.035119 -2.979055 1.382785
1 5.946632 -3.555424 1.559099
6 4.589962 -2.042589 2.326157
1 5.133110 -1.862002 3.254356
6 3.427877 -1.334536 2.060619
1 3.017488 -0.583740 2.741966
8 -2.299413 0.235602 -2.272710
77 0.883370 -0.434689 0.554769
6 -2.146320 -0.158887 -1.139825
8 -2.704056 -1.250563 -0.637562
1 0.071368 -1.571563 1.311423
15 -1.067874 0.639381 0.183933
14 -4.134913 -2.040081 -1.230671
6 -3.794481 -2.783785 -2.912242
1 -2.959274 -3.499700 -2.871453
1 -4.684751 -3.317620 -3.284360
1 -3.535338 -1.992024 -3.631118
6 -4.443287 -3.325480 0.088316
1 -3.603740 -4.036323 0.146503
1 -4.549282 -2.843259 1.072977
1 -5.362675 -3.896629 -0.119928
6 -5.463063 -0.722573 -1.280800
1 -5.201775 0.061104 -2.008701
1 -6.435878 -1.152095 -1.570920
1 -5.573460 -0.253719 -0.289932
17 1.120040 0.950633 2.675976
6 -2.322571 0.734795 1.512006
6 -3.489995 1.481851 1.285967
6 -2.177758 0.005554 2.697089
6 -4.511216 1.489958 2.236708
1 -3.600609 2.057745 0.363389
6 -3.203211 0.018334 3.646923
1 -1.258413 -0.552366 2.871742
6 -4.368874 0.754143 3.418602
1 -5.417806 2.072835 2.056927
1 -3.085694 -0.547391 4.574131
1 -5.167010 0.760998 4.165093
6 -0.823324 2.364405 -0.360709
6 -0.675409 3.349139 0.629735
6 -0.586750 2.687457 -1.705638
6 -0.324110 4.651463 0.271212
1 -0.800154 3.083713 1.680735

6 -0.230194 3.991657 -2.054013
1 -0.685599 1.922115 -2.474175
6 -0.102699 4.975761 -1.070185
1 -0.210853 5.412726 1.046729
1 -0.045054 4.236446 -3.102471
1 0.178910 5.994423 -1.348109
A (X= OTF)
14 1.031442 -2.521296 -0.047808
7 -0.647399 -0.913503 1.680683
6 0.026129 -1.872154 2.351405
8 0.897518 -2.628048 1.690656
6 -0.160841 -2.072806 3.728878
1 0.405102 -2.863940 4.220318
6 -1.043803 -1.247807 4.410784
1 -1.197290 -1.380488 5.484464
6 -1.726841 -0.244054 3.712396
1 -2.419032 0.434393 4.211502
6 -1.499734 -0.113556 2.350258
1 -1.990010 0.657099 1.759741
7 -1.673694 -2.216900 -0.967228
6 -1.283283 -3.513710 -0.924248
8 -0.038543 -3.799460 -0.578257
6 -2.174509 -4.552715 -1.245584
1 -1.810546 -5.578403 -1.189433
6 -3.471612 -4.236774 -1.620906
1 -4.176323 -5.032031 -1.875334
6 -3.864198 -2.892243 -1.671335
1 -4.872572 -2.599263 -1.964929
6 -2.937179 -1.916868 -1.338534
1 -3.173891 -0.853542 -1.356992
77 -0.201841 -0.691188 -0.509952
1 0.120692 -0.590529 -2.064138
15 1.516437 0.823338 -0.198559
14 1.620307 2.808283 -1.437788
6 2.719139 -3.230099 -0.364610
1 2.779886 -4.211678 0.132115
1 2.893010 -3.364443 -1.441334
1 3.510286 -2.577776 0.030591
6 0.809967 4.307058 -0.653770
1 1.364616 4.628858 0.240795
1 0.865784 5.120269 -1.397893
1 -0.242141 4.152045 -0.392759
6 0.883822 2.343700 -3.096522
1 -0.200017 2.191191 -3.001754
1 1.056403 3.169250 -3.807559
1 1.349259 1.435234 -3.506238
6 3.456549 3.209777 -1.613647
1 4.005597 2.455007 -2.193306
1 3.538190 4.177691 -2.137789
1 3.947160 3.317994 -0.633960

6	3.143239	0.179782	-0.790678	6	-3.454205	3.687494	-1.626918
6	4.351990	0.432557	-0.123886	1	-3.339813	4.770775	-1.677297
6	3.180857	-0.473953	-2.033522	6	-2.386525	2.896261	-1.231205
6	5.566035	0.014059	-0.674045	1	-1.417877	3.320204	-0.962843
1	4.352897	0.969476	0.824829	77	-0.803703	0.292593	-0.571059
6	4.396560	-0.870039	-2.592406	1	-0.304536	0.283149	-2.083581
1	2.245617	-0.682997	-2.554608	15	0.985302	-1.148380	-0.105100
6	5.593922	-0.636137	-1.910528	14	3.640547	-0.279817	-0.336267
1	6.496962	0.208989	-0.136157	6	-2.528628	-2.970801	-1.539851
1	4.406295	-1.375279	-3.561186	1	-3.523530	-3.381417	-1.305693
1	6.545007	-0.957002	-2.341749	1	-2.419864	-2.892994	-2.631240
6	1.734890	1.181876	1.586460	1	-1.756273	-3.660612	-1.172706
6	1.028059	2.248321	2.162990	6	5.113900	0.890535	-0.042761
6	2.431499	0.291693	2.421939	1	5.002439	1.428011	0.913444
6	1.053613	2.442003	3.546348	1	6.048568	0.307491	0.012551
1	0.407755	2.894927	1.544539	1	5.216765	1.641641	-0.840413
6	2.453492	0.490096	3.802494	6	3.739059	-0.955680	-2.084816
1	2.936958	-0.577736	1.999623	1	2.960717	-0.511541	-2.721831
6	1.771259	1.571292	4.368684	1	4.721414	-0.700766	-2.514448
1	0.492500	3.272593	3.980675	1	3.612761	-2.046193	-2.108857
1	2.994569	-0.213177	4.439942	6	3.960307	-1.530618	1.052146
1	1.786222	1.722933	5.450613	1	3.388382	-2.461008	0.955936
8	-2.067695	2.895064	-1.833572	1	5.039060	-1.765382	1.038001
16	-2.281593	2.192823	-0.565432	1	3.731090	-1.091381	2.034215
6	-4.132823	2.152701	-0.324401	6	1.057153	-2.586827	-1.253892
9	-4.625832	3.386568	-0.341533	6	1.669019	-3.795778	-0.870722
9	-4.434450	1.584545	0.847018	6	0.650407	-2.450257	-2.592757
9	-4.713538	1.443178	-1.297257	6	1.855413	-4.831140	-1.788912
8	-2.003699	0.708752	-0.607895	1	2.002738	-3.935467	0.158555
8	-1.771062	2.830060	0.663443	6	0.844603	-3.481792	-3.512959
TSAB (X= OTF)				1	0.178157	-1.519570	-2.908369
14	-2.351093	-1.300084	-0.754771	6	1.445688	-4.679467	-3.116934
7	-1.597132	0.301697	1.516499	1	2.327238	-5.761822	-1.463375
6	-2.448290	-0.695308	1.845260	1	0.519692	-3.348334	-4.548080
8	-2.826556	-1.555265	0.907106	1	1.593220	-5.488818	-3.835936
6	-2.938263	-0.833260	3.155337	6	0.622133	-1.921402	1.531033
1	-3.605361	-1.666350	3.374012	6	0.983276	-1.206023	2.686449
6	-2.553956	0.089858	4.115857	6	-0.103035	-3.114463	1.685505
1	-2.921855	-0.003185	5.140393	6	0.638597	-1.675030	3.954746
6	-1.690650	1.135684	3.761722	1	1.514697	-0.257804	2.587634
1	-1.364589	1.880962	4.487795	6	-0.440984	-3.588063	2.955026
6	-1.236419	1.198823	2.453473	1	-0.418105	-3.677589	0.806669
1	-0.543431	1.972895	2.124860	6	-0.070004	-2.871619	4.095632
7	-2.470774	1.552844	-1.151794	1	0.921271	-1.097102	4.838028
6	-3.634891	0.935520	-1.468135	1	-1.008243	-4.517413	3.050728
8	-3.707942	-0.383783	-1.391373	1	-0.338411	-3.239917	5.088806
6	-4.758719	1.677107	-1.876775	8	2.582269	1.322314	-0.687074
1	-5.673504	1.136256	-2.118714	16	1.821004	2.174131	0.315806
6	-4.663814	3.058522	-1.955855	6	2.515067	3.879104	-0.002834
1	-5.527624	3.648087	-2.272120	9	3.810853	3.899010	0.280631

9 1.878575 4.747659 0.776541
 9 2.333226 4.210240 -1.273857
 8 0.393900 2.317536 -0.070273
 8 2.115328 1.849386 1.711573
 B (X= OTF)
 14 3.412530 -0.201818 -1.002891
 6 4.741583 0.724065 -1.898186
 1 5.739786 0.346002 -1.628221
 1 4.669371 1.789309 -1.630688
 1 4.601325 0.630359 -2.985492
 7 1.726634 -0.353653 1.321893
 6 3.041190 -0.409452 1.631128
 8 3.940073 -0.268890 0.661993
 6 3.475141 -0.601562 2.954727
 1 4.547072 -0.641150 3.147910
 6 2.528511 -0.719701 3.961854
 1 2.846459 -0.857954 4.998010
 6 1.167784 -0.645142 3.637650
 1 0.390780 -0.703988 4.399758
 6 0.817991 -0.461240 2.308810
 1 -0.224364 -0.362670 2.014723
 7 1.308448 -2.143474 -1.192838
 6 2.523398 -2.676045 -1.468662
 8 3.583288 -1.886309 -1.487102
 6 2.668223 -4.052012 -1.735870
 1 3.666850 -4.434541 -1.947041
 6 1.545651 -4.865765 -1.722638
 1 1.642061 -5.934288 -1.929122
 6 0.289960 -4.302740 -1.446785
 1 -0.618177 -4.906963 -1.437837
 6 0.223584 -2.941062 -1.191067
 1 -0.723792 -2.443082 -0.983936
 77 1.222456 0.022844 -0.827289
 1 0.969248 0.266123 -2.383064
 15 1.261793 2.385591 -0.610618
 14 -3.503527 -2.995707 0.962882
 6 -2.007242 -3.395733 2.002544
 1 -1.728477 -2.541177 2.637097
 1 -2.217210 -4.255948 2.659479
 1 -1.142561 -3.654577 1.371275
 6 -3.948619 -4.338032 -0.252087
 1 -4.281290 -5.243694 0.281065
 1 -4.763911 -4.013441 -0.917185
 1 -3.082438 -4.607753 -0.876089
 6 -4.954879 -2.350772 1.937977
 1 -5.775480 -2.050418 1.267986
 1 -5.336438 -3.125690 2.622701
 1 -4.655939 -1.475912 2.534251
 16 -2.469637 -0.262814 0.249850
 6 -3.800315 0.785450 -0.550786

9 -3.797155 0.592925 -1.855768
 9 -4.976696 0.417055 -0.045946
 9 -3.567943 2.050536 -0.263186
 8 -3.017214 -1.695986 -0.135398
 8 -1.234610 -0.027756 -0.482941
 8 -2.553600 -0.045990 1.690655
 6 -0.291619 3.053345 -1.372233
 6 -0.784466 4.302037 -0.938095
 6 -0.944088 2.442566 -2.458991
 6 -1.892684 4.896205 -1.541977
 1 -0.291211 4.814005 -0.108344
 6 -2.042954 3.046302 -3.077456
 1 -0.586034 1.476684 -2.815615
 6 -2.531291 4.271483 -2.618934
 1 -2.255938 5.859777 -1.173727
 1 -2.528934 2.543594 -3.918368
 1 -3.396969 4.738319 -3.095773
 6 0.875120 2.612920 1.191535
 6 1.963890 2.735900 2.074373
 6 -0.416734 2.588650 1.746181
 6 1.772937 2.812451 3.455255
 1 2.977003 2.760396 1.662600
 6 -0.613459 2.680466 3.125518
 1 -1.280785 2.491805 1.089394
 6 0.480543 2.790441 3.988843
 1 2.638179 2.895058 4.118432
 1 -1.629918 2.648842 3.527077
 1 0.328019 2.857087 5.069079
 C (X= OTF)
 14 -2.425325 0.353169 -1.608428
 6 -3.162855 -0.852511 -2.810785
 1 -4.202143 -0.562429 -3.031720
 1 -3.153373 -1.872027 -2.403507
 1 -2.586413 -0.849184 -3.747770
 7 -1.962298 1.128009 1.117306
 6 -3.276494 0.959754 0.846441
 8 -3.637416 0.557501 -0.365272
 6 -4.256499 1.205007 1.823913
 1 -5.301455 1.042168 1.562412
 6 -3.857474 1.630060 3.081879
 1 -4.604899 1.819816 3.855911
 6 -2.492712 1.804371 3.353574
 1 -2.140571 2.129711 4.332990
 6 -1.582364 1.538182 2.341956
 1 -0.505328 1.625950 2.496551
 7 -0.686356 2.635009 -1.278633
 6 -1.689441 2.866206 -2.159352
 8 -2.523306 1.884198 -2.464349
 6 -1.858392 4.130875 -2.754055
 1 -2.681040 4.264542 -3.456490

6 -0.981618 5.154048 -2.426297
1 -1.098842 6.141289 -2.879617
6 0.049953 4.908586 -1.508968
1 0.760468 5.684903 -1.223192
6 0.156158 3.638175 -0.963294
1 0.939711 3.388868 -0.249411
8 2.392302 -2.423571 2.608546
77 -0.533930 0.587221 -0.474447
6 1.742126 -1.509450 2.915606
8 1.144622 -0.591495 3.312204
1 0.449764 0.204330 -1.674343
15 -0.288951 -1.587724 0.374409
14 3.836330 -1.383775 -0.949240
6 3.138173 -0.895858 -2.600854
1 3.343456 0.160785 -2.823588
1 3.589260 -1.524107 -3.386963
1 2.051119 -1.052561 -2.615990
6 3.441375 -3.117934 -0.424898
1 3.964864 -3.828098 -1.086456
1 3.750033 -3.302011 0.613777
1 2.361006 -3.307276 -0.500226
6 5.638291 -0.919399 -0.768878
1 6.012336 -1.139254 0.243174
1 6.249839 -1.487037 -1.489549
1 5.784666 0.153179 -0.968983
16 2.722356 1.127790 0.366141
6 3.875031 1.628325 1.750821
9 3.647936 0.901788 2.835273
9 5.133270 1.455014 1.360786
9 3.665410 2.909930 2.019287
8 3.021191 -0.398136 0.300857
8 1.379412 1.356735 0.916946
8 3.163708 1.845790 -0.820556
6 -1.889899 -2.038234 1.198169
6 -2.061444 -1.694172 2.551579
6 -2.963808 -2.659851 0.537685
6 -3.270340 -1.929380 3.208751
1 -1.238856 -1.222698 3.091253
6 -4.171022 -2.905187 1.194815
1 -2.851852 -2.956047 -0.506434
6 -4.333652 -2.534554 2.533072
1 -3.381096 -1.637172 4.256300
1 -4.992829 -3.383825 0.655389
1 -5.280347 -2.721134 3.046200
6 -0.242351 -2.876904 -0.948691
6 -0.136363 -2.601745 -2.321862
6 -0.191212 -4.228094 -0.545523
6 0.026204 -3.630754 -3.256250
1 -0.183758 -1.565241 -2.654862
6 -0.045509 -5.256503 -1.475495

1 -0.261591 -4.468357 0.518821
6 0.071252 -4.962357 -2.839910
1 0.108879 -3.385898 -4.318810
1 -0.013092 -6.294865 -1.134795
1 0.193463 -5.766777 -3.569412
TSCD (X= OTF)
14 -2.470650 0.871292 -1.538440
6 -3.122711 0.249757 -3.160413
1 -4.221110 0.183969 -3.121541
1 -2.707176 -0.735234 -3.409764
1 -2.837965 0.958297 -3.953149
7 -2.111005 0.503844 1.300670
6 -3.406611 0.412805 0.924273
8 -3.718851 0.547493 -0.357251
6 -4.422880 0.181464 1.868580
1 -5.448600 0.092082 1.513134
6 -4.082393 0.062752 3.206591
1 -4.857967 -0.126004 3.952472
6 -2.739209 0.184481 3.592716
1 -2.433517 0.104670 4.636447
6 -1.793253 0.406208 2.604020
1 -0.731729 0.511316 2.838811
7 -0.805062 2.841225 -0.243635
6 -1.792339 3.397317 -0.986300
8 -2.576826 2.612692 -1.705039
6 -1.999296 4.789443 -1.004106
1 -2.805930 5.181514 -1.623410
6 -1.181392 5.604043 -0.236491
1 -1.328427 6.686676 -0.238507
6 -0.172243 5.021629 0.543002
1 0.491624 5.622755 1.165099
6 -0.024368 3.643819 0.507739
1 0.744309 3.143642 1.092287
8 1.056730 -2.632841 -3.181651
77 -0.608809 0.644358 -0.328093
6 -0.118371 -2.526209 -3.159079
8 -1.227461 -2.532829 -3.554528
1 0.397090 0.743090 -1.563208
15 -0.485982 -1.703405 -0.627507
14 3.937144 -0.455643 -1.699984
6 2.880705 0.287479 -3.033565
1 2.688570 1.352193 -2.837691
1 3.395605 0.191128 -4.004212
1 1.921530 -0.244185 -3.096758
6 4.135819 -2.298563 -1.785202
1 4.868432 -2.553104 -2.569198
1 4.488817 -2.706461 -0.826305
1 3.175173 -2.766074 -2.038667
6 5.549189 0.458946 -1.453715
1 6.136268 0.030831 -0.626930

1	6.154823	0.390850	-2.372696	6	1.826786	-3.289526	-1.349656
1	5.368530	1.523508	-1.242453	8	2.878484	-2.495004	-1.473255
16	2.617047	1.058459	0.558963	6	1.929271	-4.646837	-1.703940
6	3.764813	1.076594	2.033665	1	2.886311	-5.011135	-2.076947
9	3.544128	0.031925	2.813326	6	0.819466	-5.466579	-1.564425
9	5.025906	1.063805	1.618000	1	0.882423	-6.522896	-1.836145
9	3.531956	2.195632	2.710153	6	-0.376985	-4.928122	-1.069652
8	3.057091	-0.250505	-0.149478	1	-1.272331	-5.537032	-0.942116
8	1.287974	0.898294	1.175511	6	-0.408043	-3.582591	-0.739307
8	2.917546	2.251735	-0.219608	1	-1.312276	-3.115592	-0.351323
6	0.769486	-2.479881	0.498459	8	-0.774845	1.420576	2.312315
6	1.435393	-3.623208	0.025282	77	0.624106	-0.653916	-0.428738
6	1.077639	-2.027219	1.792193	6	-0.943441	1.988159	1.224740
6	2.381609	-4.286768	0.811155	8	-1.846705	2.671807	0.750814
1	1.210939	-3.993209	-0.976462	1	0.181886	-0.371808	-1.930520
6	2.023559	-2.685598	2.580480	15	0.555535	1.612990	0.005245
1	0.574858	-1.147328	2.185979	14	-4.600810	0.546947	1.911653
6	2.683483	-3.816621	2.091393	8	-1.668031	-0.823896	0.294515
1	2.886867	-5.173030	0.418372	16	-3.021392	-0.805054	-0.292095
1	2.248031	-2.312470	3.582871	6	-2.909548	-0.161510	-2.051492
1	3.425218	-4.331036	2.707713	8	-3.740536	-2.073104	-0.330720
6	-2.045973	-2.412020	0.086403	8	-3.869950	0.351462	0.294373
6	-3.152066	-2.553437	-0.770564	9	-2.283536	-1.076442	-2.780850
6	-2.200571	-2.790339	1.431361	9	-4.142697	-0.000073	-2.511648
6	-4.379814	-3.016695	-0.293081	9	-2.260127	0.982655	-2.089741
1	-3.044794	-2.308182	-1.827318	6	0.444017	2.724914	-1.441173
6	-3.424635	-3.262578	1.908017	6	-0.025906	4.036896	-1.261123
1	-1.357629	-2.710085	2.117913	6	0.853404	2.312306	-2.717201
6	-4.523904	-3.369916	1.051027	6	-0.073027	4.918747	-2.341848
1	-5.225756	-3.109282	-0.979136	1	-0.378870	4.352277	-0.279394
1	-3.521600	-3.541127	2.960804	6	0.809896	3.199398	-3.795886
1	-5.483212	-3.734816	1.426572	1	1.198805	1.288180	-2.860931
D (X= OTF)				6	0.347531	4.504685	-3.609790
14	2.804157	-0.857771	-0.855074	1	-0.446528	5.935009	-2.193937
6	4.072719	0.062785	-1.841640	1	1.133969	2.867182	-4.785358
1	5.018893	-0.501027	-1.838902	1	0.308576	5.198108	-4.453698
1	4.249169	1.053656	-1.401594	6	2.057275	2.215364	0.879536
1	3.737489	0.187313	-2.882104	6	2.224745	1.954190	2.250422
7	1.348749	-1.097686	1.620185	6	3.076633	2.884363	0.181498
6	2.686275	-1.166853	1.795361	6	3.403920	2.330584	2.895930
8	3.482142	-1.021912	0.738873	1	1.412632	1.479953	2.801216
6	3.243821	-1.379261	3.066381	6	4.253445	3.258838	0.834134
1	4.328705	-1.419358	3.159054	1	2.947646	3.117954	-0.876783
6	2.391823	-1.510464	4.154570	6	4.424856	2.974935	2.191814
1	2.805040	-1.667200	5.153940	1	3.522298	2.118399	3.961387
6	1.005087	-1.436161	3.963632	1	5.038618	3.777408	0.278086
1	0.306145	-1.523914	4.795657	1	5.347203	3.264899	2.701067
6	0.526911	-1.226806	2.678490	6	-6.206433	-0.401868	1.765176
1	-0.535739	-1.126238	2.464838	1	-6.858949	0.038278	0.994544
7	0.664190	-2.774946	-0.880173	1	-6.008705	-1.450158	1.490906

1 -6.753722 -0.391131 2.722331
 6 -3.403015 -0.231460 3.103194
 1 -2.449788 0.324279 3.070630
 1 -3.811866 -0.192461 4.126591
 1 -3.223700 -1.288659 2.849320
 6 -4.776055 2.386008 2.050956
 1 -5.081095 2.672067 3.070876
 1 -3.793042 2.829167 1.817000
 1 -5.523309 2.772511 1.340418
 TSDE (X= OTF)
 14 -2.734874 1.512415 -0.130812
 6 -4.360875 1.146098 -0.942718
 1 -5.166968 1.667611 -0.402881
 1 -4.572142 0.068348 -0.938840
 1 -4.349623 1.495961 -1.985687
 7 -0.706224 0.812793 1.780744
 6 -1.932094 0.927984 2.338327
 8 -2.976253 1.201455 1.557353
 6 -2.130078 0.763156 3.718221
 1 -3.141610 0.856243 4.111972
 6 -1.035520 0.476194 4.521029
 1 -1.168769 0.336703 5.596486
 6 0.234601 0.366513 3.940397
 1 1.122324 0.143345 4.532291
 6 0.352647 0.545335 2.569613
 1 1.316836 0.477178 2.070768
 7 -0.308124 3.033028 -0.341380
 6 -1.404843 3.820963 -0.230088
 8 -2.602367 3.254464 -0.206040
 6 -1.287267 5.218765 -0.138913
 1 -2.199414 5.808815 -0.052241
 6 -0.024011 5.791664 -0.156914
 1 0.084881 6.876366 -0.085742
 6 1.105614 4.967878 -0.261596
 1 2.116439 5.375985 -0.274533
 6 0.916864 3.598200 -0.350871
 1 1.754349 2.909825 -0.433368
 8 1.346452 -2.022477 0.533056
 77 -0.612497 0.900522 -0.474982
 6 0.730214 -2.282924 -0.555951
 8 1.054377 -2.954595 -1.513495
 1 -0.654658 1.003839 -2.059098
 15 -0.952049 -1.362941 -0.617293
 14 3.429878 -2.503353 0.942254
 8 1.726228 0.550804 -0.985850
 16 3.006324 0.307897 -0.285396
 6 4.277496 1.094357 -1.401795
 8 3.173408 0.930736 1.029381
 8 3.497947 -1.137297 -0.356623
 9 4.021983 2.403510 -1.464817

9 5.488208 0.911273 -0.894549
 9 4.215940 0.577368 -2.616721
 6 3.025054 -4.258982 0.418894
 1 3.835032 -4.936297 0.733969
 1 2.070875 -4.595848 0.849389
 1 2.919387 -4.304307 -0.674343
 6 3.028167 -1.952213 2.696908
 1 3.294470 -0.892109 2.825915
 1 1.973580 -2.089215 2.966591
 1 3.658628 -2.536557 3.387377
 6 5.338488 -2.479214 0.934693
 1 5.734056 -3.204766 1.666448
 1 5.741641 -2.749490 -0.055536
 1 5.731121 -1.481692 1.192071
 6 -1.824317 -2.024856 -2.074511
 6 -1.923991 -3.417565 -2.234634
 6 -2.407407 -1.178928 -3.026173
 6 -2.609007 -3.949684 -3.325815
 1 -1.455467 -4.083241 -1.508362
 6 -3.097397 -1.715450 -4.117381
 1 -2.309287 -0.099267 -2.912656
 6 -3.200564 -3.099710 -4.267404
 1 -2.677721 -5.033348 -3.446531
 1 -3.550135 -1.047522 -4.854093
 1 -3.736938 -3.519744 -5.121842
 6 -1.920414 -2.035792 0.794523
 6 -1.297724 -2.350318 2.012888
 6 -3.315960 -2.148537 0.690421
 6 -2.063614 -2.754091 3.107669
 1 -0.214162 -2.274446 2.088688
 6 -4.078084 -2.546699 1.789969
 1 -3.809337 -1.932921 -0.258776
 6 -3.453957 -2.846743 3.004017
 1 -1.566569 -2.992131 4.051085
 1 -5.163768 -2.626113 1.695726
 1 -4.050524 -3.157723 3.865031
 E (X= OTF)
 14 -0.180567 -2.696110 -0.695274
 6 1.204428 -3.867028 -1.078383
 1 0.822141 -4.899271 -1.037508
 1 2.026123 -3.752959 -0.358907
 1 1.592894 -3.676008 -2.089812
 7 -1.861452 -1.190179 1.079004
 6 -1.616724 -2.442837 1.525774
 8 -0.776229 -3.222889 0.848607
 6 -2.232789 -2.947799 2.682103
 1 -1.972731 -3.954147 3.008673
 6 -3.149205 -2.153353 3.354610
 1 -3.638366 -2.526890 4.257418
 6 -3.444217 -0.878814 2.856892

1	-4.171681	-0.225642	3.339428	1	2.261274	4.474378	-1.107658
6	-2.778861	-0.438837	1.721861	1	3.510990	5.237101	0.910084
1	-2.987436	0.546129	1.306177	6	0.956455	-0.524211	2.465908
7	-2.141490	-0.975795	-1.941153	6	0.086677	0.283062	3.222484
6	-2.302130	-2.279208	-2.274807	6	1.438136	-1.727759	3.001293
8	-1.438678	-3.172830	-1.816878	6	-0.281100	-0.111505	4.508336
6	-3.368098	-2.689220	-3.093779	1	-0.314048	1.206779	2.796163
1	-3.454967	-3.748239	-3.335746	6	1.062619	-2.110582	4.292071
6	-4.267971	-1.738706	-3.554006	1	2.103592	-2.356479	2.412843
1	-5.103983	-2.041467	-4.189028	6	0.205166	-1.307381	5.046370
6	-4.098905	-0.395355	-3.192292	1	-0.961428	0.516722	5.087638
1	-4.789638	0.380161	-3.523896	1	1.442544	-3.047729	4.705978
6	-3.025096	-0.055376	-2.384561	1	-0.089520	-1.614832	6.052801
1	-2.839947	0.966132	-2.054783				
8	3.228869	-1.938433	0.563152				
77	-0.511033	-0.463404	-0.636322				
6	2.799484	-0.886216	0.143477				
8	3.319819	-0.209320	-0.862181				
1	0.430638	-0.106812	-1.860049				
15	1.244631	-0.002428	0.739918				
14	4.736447	-0.628776	-1.783576				
6	4.375863	-2.228650	-2.683047				
1	3.464997	-2.132397	-3.295285				
1	5.209786	-2.495408	-3.353081				
1	4.228525	-3.051116	-1.967545				
6	4.886258	0.833805	-2.934521				
1	3.999677	0.910904	-3.583617				
1	4.966015	1.769014	-2.357835				
1	5.777259	0.745985	-3.577279				
6	6.168346	-0.765328	-0.588995				
1	5.991845	-1.581092	0.128054				
1	7.109439	-0.968117	-1.126270				
1	6.293608	0.172376	-0.024155				
16	-1.871659	2.594909	0.149695				
6	-1.776719	4.252465	-0.700644				
8	-3.318494	2.319551	0.216440				
8	-1.156871	1.726287	-0.864887				
8	-1.152815	2.739764	1.422377				
9	-2.411795	4.194208	-1.872506				
9	-2.356493	5.179235	0.057715				
9	-0.511770	4.611824	-0.922363				
6	1.891906	1.702810	0.836427				
6	2.590362	2.131132	1.974725				
6	1.781202	2.546331	-0.276032				
6	3.171716	3.400074	1.998822				
1	2.676656	1.477384	2.844532				
6	2.366427	3.812318	-0.245808				
1	1.219558	2.216989	-1.148708				
6	3.061380	4.241360	0.888170				
1	3.709148	3.733110	2.889914				