

Electronic Supplementary Information (ESI)

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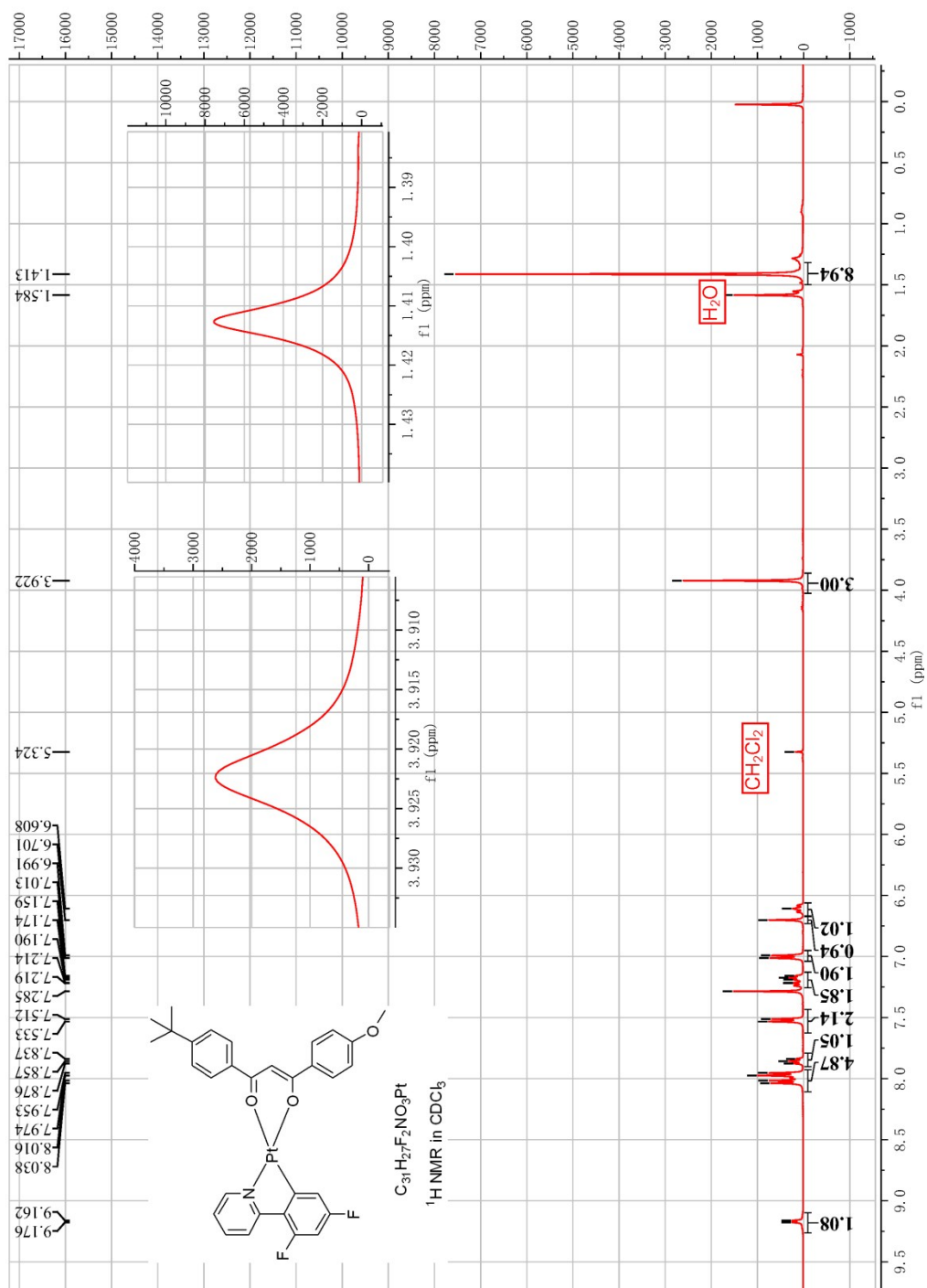


Figure S1. ¹H NMR spectra of Pt-dfppy in CDCl₃.

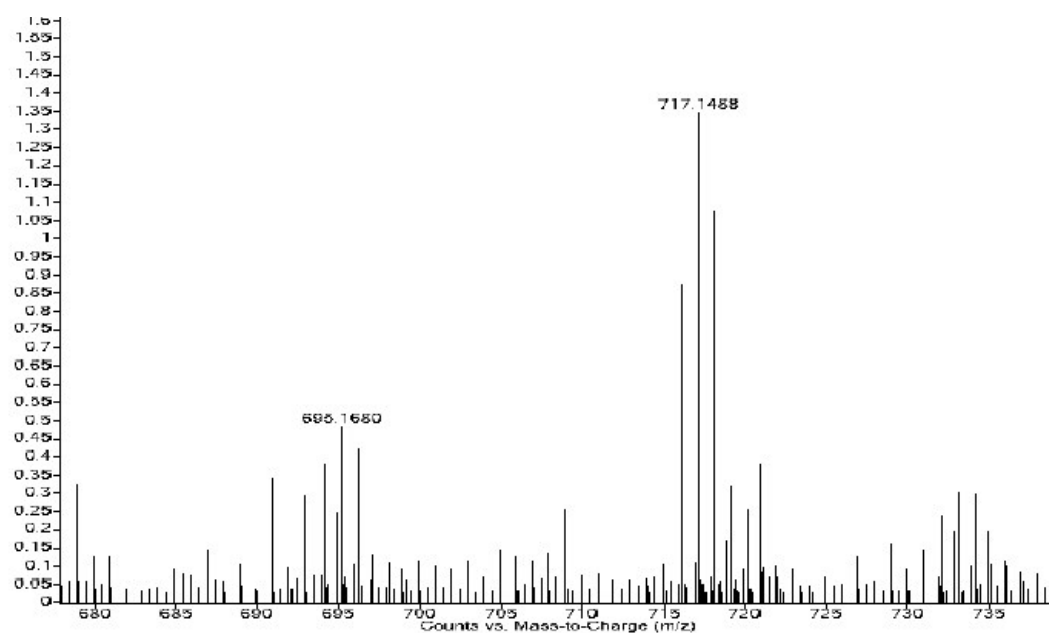


Figure S2. Tof-mass spectra of Pt-dfppy in CDCl_3 .

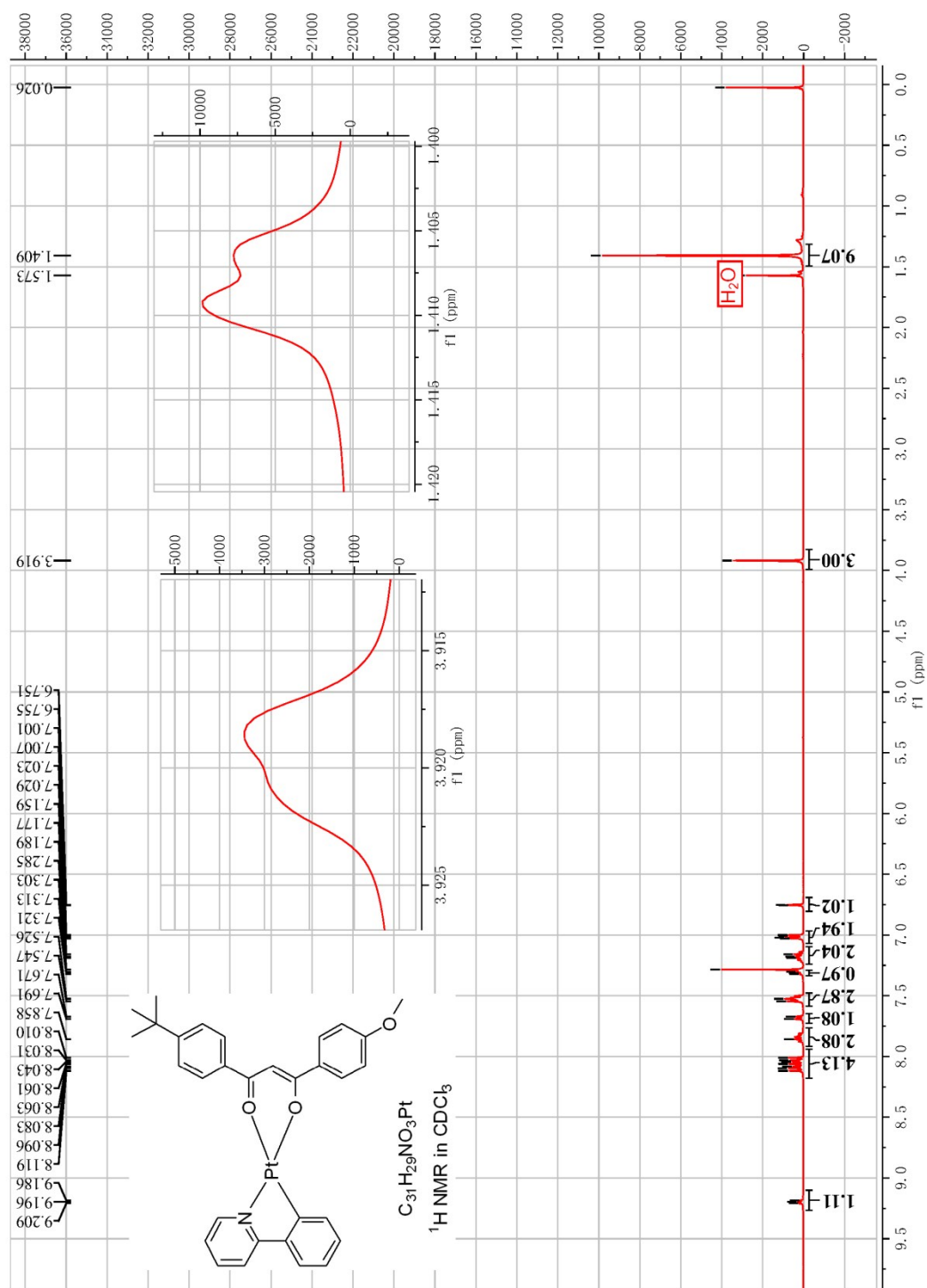


Figure S3. ¹H NMR spectra of Pt-ppy in CDCl₃. The ratio of two isomers is 3:4.

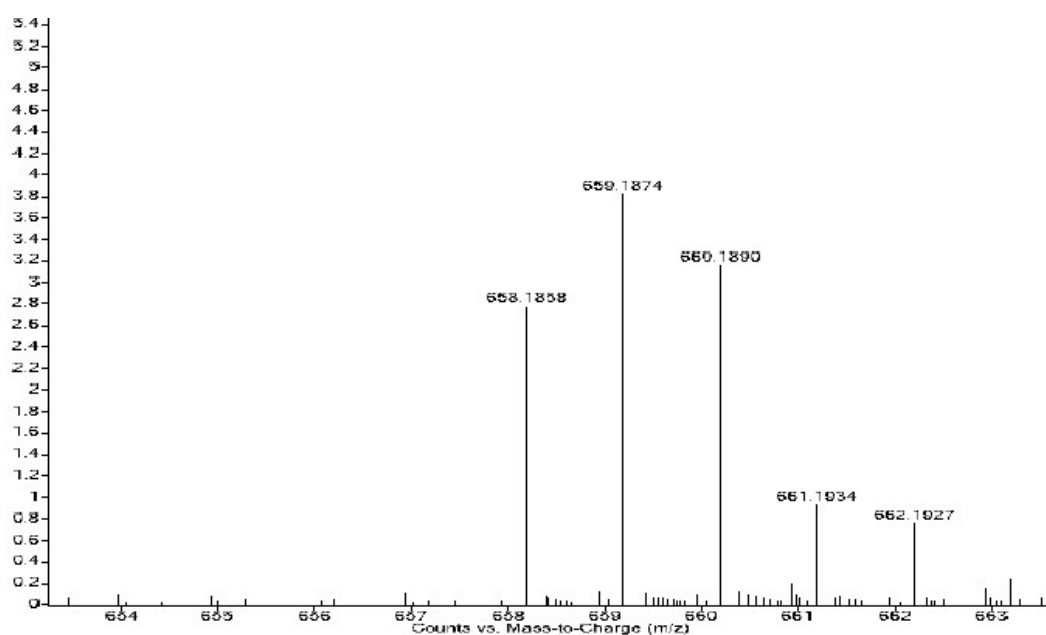


Figure S4. Tof-mass spectra of Pt-ppy.

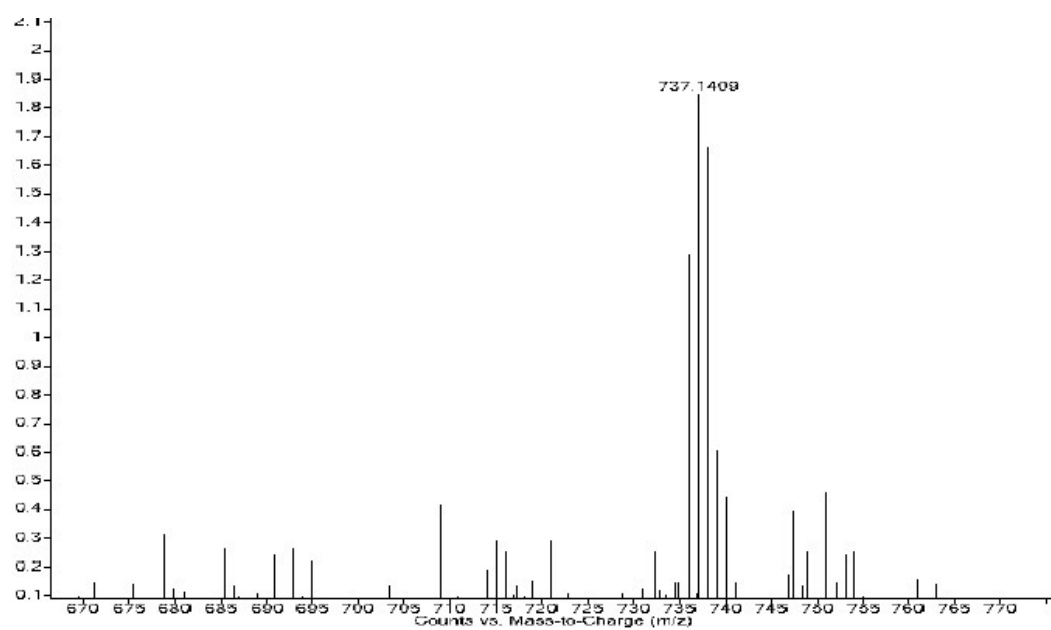


Figure S6. Tof-mass spectra of Pt-bt.

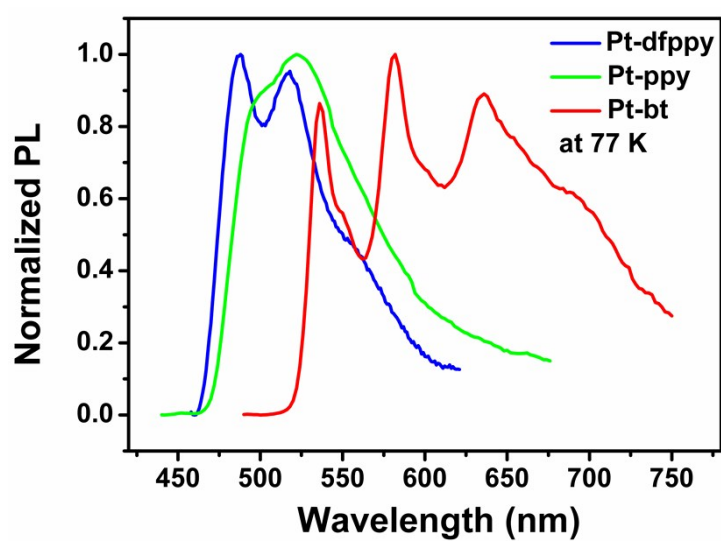


Figure S7. The normalized photoluminescence (B) spectra of platinum(II) complexes in acetonitrile solution at 77 K.

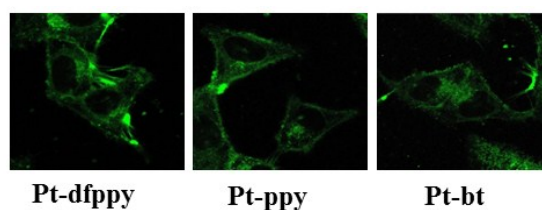


Figure S8. Fluorescence images of HeLa cells incubated with 10 μ M platinum(II) complexes for 2 hours at 37 $^{\circ}$ C.

Table S1. The limits of detection (LOD) of platinum(II) complexes for different proteins in this work.

Protein	LOD (ng)		
	Pt-dfppy	Pt-ppy	Pt-bt
β -gal	34	34	17
BSA	35	17.5	17.5
Ova	34.5	17.25	17.25
Lac de	37.5	9.38	18.75
REase	22.5	11.25	45
β -lac	50	25	25
Lys	15	15	15

Table S2. Cartesian coordinates in xyz format of the optimized geometries of Pt-dfppy at ground state.

C	1.79858868	-2.37950045	0.02889205
C	3.19693725	-2.67429073	0.02871331
C	0.86927954	-3.42825142	0.04569710
C	3.58920104	-4.01841783	0.05090442
C	1.33360559	-4.73768584	0.06769580
H	-0.19301854	-3.22293151	0.03401930
C	2.68782365	-5.07111147	0.07189733
H	3.02277141	-6.09821454	0.08865033
C	4.07738608	-1.51232532	0.00227885
C	5.48193641	-1.49176291	0.00414548
C	6.15894038	-0.27263150	-0.01650141
H	6.02077077	-2.42701071	0.02316067
C	4.04521812	0.86886659	-0.03959966
C	5.43472851	0.92641365	-0.03705122
H	7.24338247	-0.25837282	-0.01449021
H	3.41201964	1.74653867	-0.04938116
H	5.93316733	1.88776307	-0.04942371
N	3.38986697	-0.31548843	-0.02385100
C	-1.56687310	0.21880991	-0.02539364
O	1.07442727	1.66621538	-0.09483045
O	-0.64565198	-0.72035101	0.02093604
C	-1.33190081	1.60138310	-0.03581418
H	-2.20976685	2.23012178	-0.03891264
C	-2.96070749	-0.30308726	-0.04118475
C	-4.03160597	0.41935686	-0.59333696
C	-3.23016078	-1.57637984	0.49645317
C	-5.32633253	-0.10735464	-0.59890205
H	-3.85709618	1.38517714	-1.05512190
C	-4.52393397	-2.09078109	0.49610606
H	-2.41331359	-2.14790900	0.92003909
C	-5.60677752	-1.37112046	-0.05094245
H	-6.11787972	0.48013357	-1.04722756
H	-4.69203713	-3.07163637	0.92889019
C	-0.08852165	2.26444410	-0.04833527
C	-0.03921771	3.75067686	-0.03287630
C	1.09200581	4.41029138	-0.56101812
C	-1.07118783	4.53613749	0.50890376
C	1.17779389	5.79586838	-0.56531728
H	1.89277039	3.81323756	-0.97972696
C	-0.99245246	5.93161816	0.52127146
H	-1.93612755	4.06186948	0.95901280

C	0.13399449	6.56414976	-0.02280359
H	2.03557900	6.31069900	-0.98161720
H	-1.79959776	6.50523122	0.95971599
Pt	1.37466703	-0.43979392	-0.01633704
F	0.41314735	-5.78084535	0.08591568
F	4.95113893	-4.34865330	0.05198440
C	-7.02270889	-1.98230200	-0.03674535
C	-7.44974959	-2.26070597	1.43124993
H	-8.45152122	-2.70683745	1.45396833
H	-6.76171497	-2.95256988	1.92813759
H	-7.47386096	-1.33195210	2.01269458
C	-8.07308662	-1.04555678	-0.67609633
H	-8.14427266	-0.09159893	-0.14089933
H	-7.84377962	-0.83669925	-1.72735600
H	-9.05898617	-1.52235945	-0.63925333
C	-7.01550631	-3.31820667	-0.83080828
H	-8.01631342	-3.76693289	-0.82210236
H	-6.72360219	-3.14946837	-1.87357172
H	-6.31758984	-4.04235357	-0.39802209
O	0.31472365	7.93797053	-0.06951712
C	-0.72006783	8.80407890	0.46947028
H	-0.86629019	8.62741186	1.54132521
H	-0.35397379	9.81729553	0.30985265
H	-1.66927502	8.66478336	-0.06063591

Table S3. Cartesian coordinates in xyz format of the optimized geometries of Pt-ppy at ground state.

C	1.26123849	-3.02028497	0.03642789
C	2.54571121	-3.63483362	0.04643751
C	0.12656590	-3.84474030	0.05052075
C	2.67365468	-5.03553907	0.07667395
C	0.26068560	-5.23763207	0.08006282
H	-0.85712185	-3.38892890	0.03120822
C	1.53156584	-5.83554164	0.09484947
H	3.65455535	-5.50271535	0.08469698
H	-0.62683014	-5.86438381	0.08996803
H	1.62584878	-6.91645735	0.11794442
C	3.66730382	-2.70249008	0.02056113
C	5.03529561	-3.01558010	0.03016800
C	5.98735995	-1.99809927	0.00737052
H	5.34258769	-4.05350714	0.05693691
C	4.20620857	-0.38384122	-0.03289753
C	5.56924171	-0.66003975	-0.02336951
H	7.04415591	-2.24231755	0.01539220
H	3.80195270	0.61992328	-0.05042826
H	6.28340525	0.15392256	-0.03795537
N	3.28598707	-1.37727730	-0.01462287
C	-1.40518673	0.31471163	-0.02788207
O	1.50018549	1.10021286	-0.09960048
O	-0.73356543	-0.81533308	0.01369090
C	-0.85254638	1.60385627	-0.03481173
H	-1.55710159	2.42231711	-0.03431689
C	-2.88445794	0.13576240	-0.04192396
C	-3.76039160	1.10079772	-0.56609423
C	-3.44159359	-1.05151260	0.47048454
C	-5.14272934	0.89239516	-0.56695327
H	-3.36838894	2.00959609	-1.00954610
C	-4.81981108	-1.24954192	0.47285637
H	-2.77688107	-1.80732154	0.87070850
C	-5.70791891	-0.28360084	-0.04430486
H	-5.77761578	1.66024660	-0.99135557
H	-5.21026537	-2.17447256	0.88490919
C	0.51270034	1.95452873	-0.05097282
C	0.91111879	3.38874768	-0.03883095
C	2.16227376	3.76078477	-0.57673476
C	0.09985105	4.39665997	0.50920847
C	2.57516430	5.08634821	-0.58404921

H	2.79487119	2.98978671	-0.99917535
C	0.50846062	5.73380277	0.51901978
H	-0.84955682	4.14093326	0.96634583
C	1.74843134	6.08040508	-0.03465378
H	3.52774696	5.38244029	-1.00734422
H	-0.13537706	6.48270494	0.96329419
Pt	1.29761564	-1.02987533	-0.01571184
O	2.25143758	7.37256178	-0.08376330
C	1.45891384	8.45816298	0.46715048
H	1.28146284	8.31539345	1.53941331
H	2.05653653	9.35492463	0.30915017
H	0.50017650	8.55497326	-0.05545405
C	-7.22740513	-0.54745032	-0.02834882
C	-8.03366884	0.62930105	-0.62421380
H	-7.77117338	0.81088089	-1.67278221
H	-9.10388961	0.39712906	-0.58483919
H	-7.87268016	1.55614209	-0.06160176
C	-7.53826173	-1.82124994	-0.86276090
H	-7.02413391	-2.70153860	-0.46290370
H	-8.61602359	-2.02540771	-0.85221224
H	-7.22317922	-1.69053156	-1.90425043
C	-7.69979113	-0.76646143	1.43585145
H	-7.19216663	-1.61719308	1.90231270
H	-7.50064501	0.12192191	2.04607529
H	-8.77855816	-0.96372803	1.45803050

Table S4. Cartesian coordinates in xyz format of the optimized geometries of Pt-bt at ground state.

C	-0.80139817	-2.97033177	0.03275553
C	-2.06560625	-3.63032644	0.05098383
C	0.35182233	-3.76811711	0.06660191
C	-2.16982045	-5.03309688	0.09411182
C	0.24740409	-5.16364818	0.10885819
H	1.32438908	-3.29011574	0.06893645
C	-1.00746083	-5.79934057	0.12118883
H	-3.14477211	-5.51270695	0.10739410
H	1.15032948	-5.76734493	0.13496390
H	-1.06939942	-6.88194287	0.15438838
C	-3.16222258	-2.70726570	0.01901580
C	-5.25114663	-1.29690346	-0.07418542
N	-2.89485621	-1.40196068	-0.01693071
C	1.86450282	0.29323641	0.01435539
O	-1.00376185	1.17125704	0.06586832
O	1.14361772	-0.80664998	-0.01829914
C	1.36470338	1.60138582	0.02885858
H	2.09682800	2.39560061	0.03801756
C	3.33395082	0.05334804	0.01247915
C	4.24855784	0.96948995	0.56612870
C	3.84320988	-1.12975825	-0.54778215
C	5.61737324	0.70842505	0.54691724
H	3.89026745	1.87426763	1.04497900
C	5.21706084	-1.38048981	-0.57184558
H	3.15045831	-1.84532868	-0.97418145
C	6.13890875	-0.46926241	-0.02623835
H	6.28936574	1.43316307	0.99487288
H	5.56445350	-2.30092550	-1.02448453
C	0.01193600	1.99304366	0.04584755
C	-0.33556539	3.43959807	0.06996401
C	-1.53480925	3.85372403	0.68953459
C	0.48186425	4.41955192	-0.51752365
C	-1.89191513	5.19500334	0.73319469
H	-2.16993694	3.10581380	1.14883590
C	0.12681968	5.77173102	-0.49258952
H	1.39097534	4.12837243	-1.03225371
C	-1.06203783	6.16085706	0.13965708
H	-2.80167527	5.52485660	1.22077236
H	0.77107239	6.49945229	-0.97006969
S	-4.93086069	-3.09276562	0.00353545
C	-4.03428615	-0.58153313	-0.08075872

C	-4.04719688	0.81837797	-0.16207723
C	-6.48331561	-0.65102029	-0.13271652
C	-5.28092196	1.46744660	-0.22402084
C	-6.48827617	0.74593935	-0.20650910
H	-7.41097910	-1.21176271	-0.12563275
H	-5.30668846	2.54993570	-0.29031157
H	-7.43484023	1.27366902	-0.25499986
H	-3.10685974	1.35489862	-0.17934793
Pt	-0.88694535	-0.97535223	0.00594340
C	7.66193119	-0.71328027	-0.02979808
C	8.03868677	-2.05471093	-0.69913983
H	9.12691110	-2.18190625	-0.67809366
H	7.59344185	-2.90763981	-0.17436987
H	7.71991997	-2.08847765	-1.74724431
C	8.36686821	0.43274291	-0.80743568
H	8.02105564	0.46773469	-1.84684019
H	8.17149634	1.41000765	-0.35323959
H	9.45211169	0.27358021	-0.81131916
C	8.18555759	-0.73765977	1.43324263
H	7.70963324	-1.54349903	2.00347258
H	9.26969275	-0.90403686	1.44261861
H	7.98572338	0.20609031	1.95178152
O	-1.50915212	7.47091202	0.22991148
C	-0.71064791	8.53042737	-0.36201934
H	-0.60878151	8.39244827	-1.44469336
H	-1.26034666	9.44826065	-0.15796849
H	0.28284327	8.58332996	0.09820121