SUPPORTING INFORMATION

Imaging Electronic Orbitals of Quantum Dots: Experiment and Electronic Structure Theory

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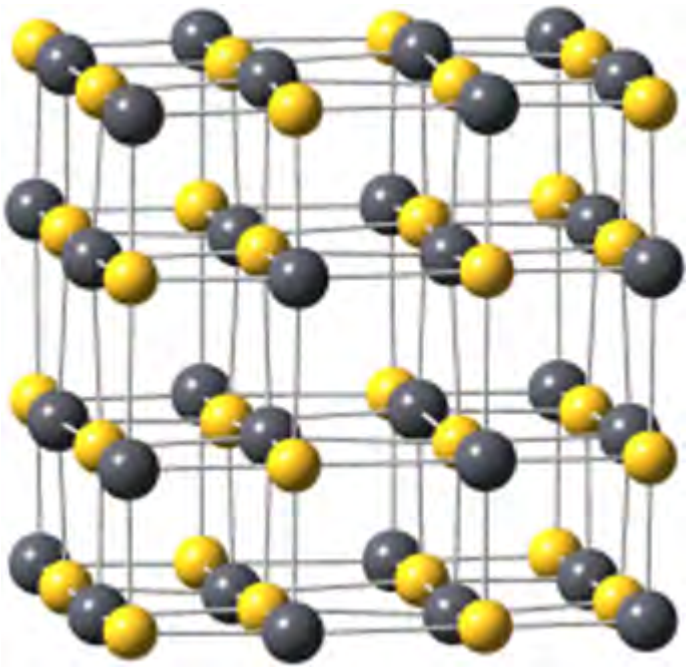

Figure S1: Lattice model of the quantum dot used for calculations (Pb = gray, S = yellow)

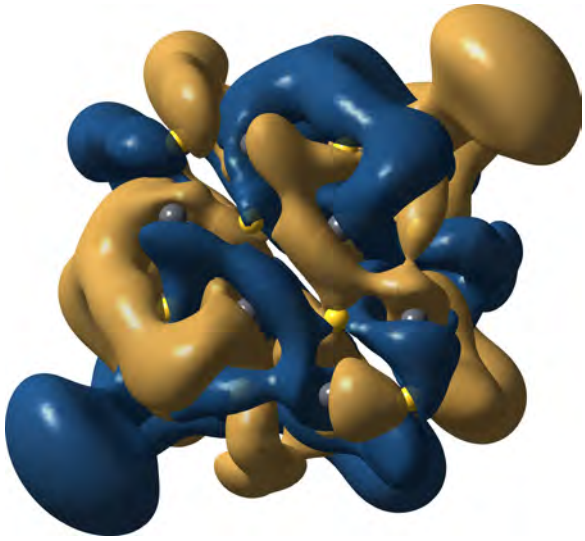

Figure S2: Electronic structure of the PbS model QD at an electric field of 1.8 V/nm.

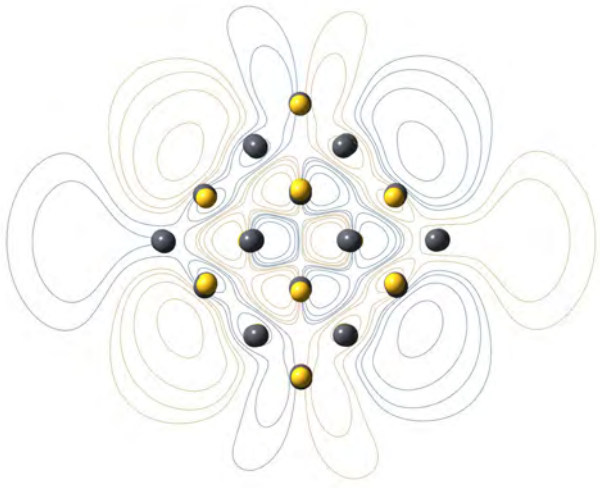

Figure S3: Contour plot of several ISO values for the quantum dot at 0.8 V/nm. The lowest ISO values (0.001) are the outer contour (the color is wave function sign), and the ISO roughly doubles with every adjacent concentric contour.

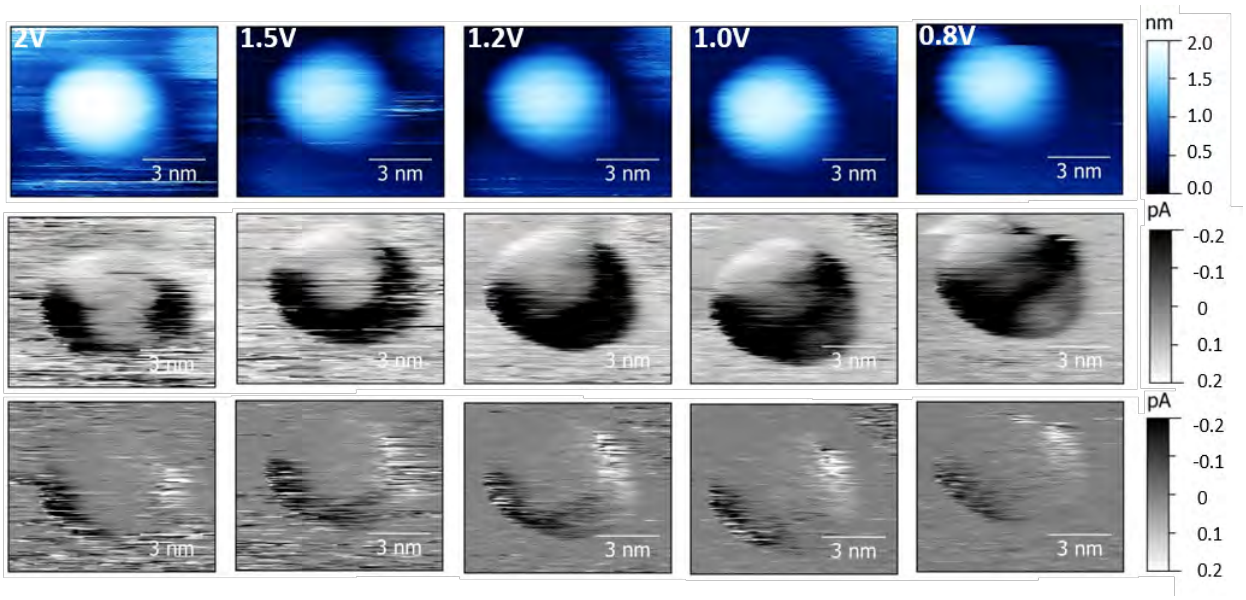

Figure S4: Additional STM topographs and in- and out-of-phase LIA images used for Figure 2 at positive bias.

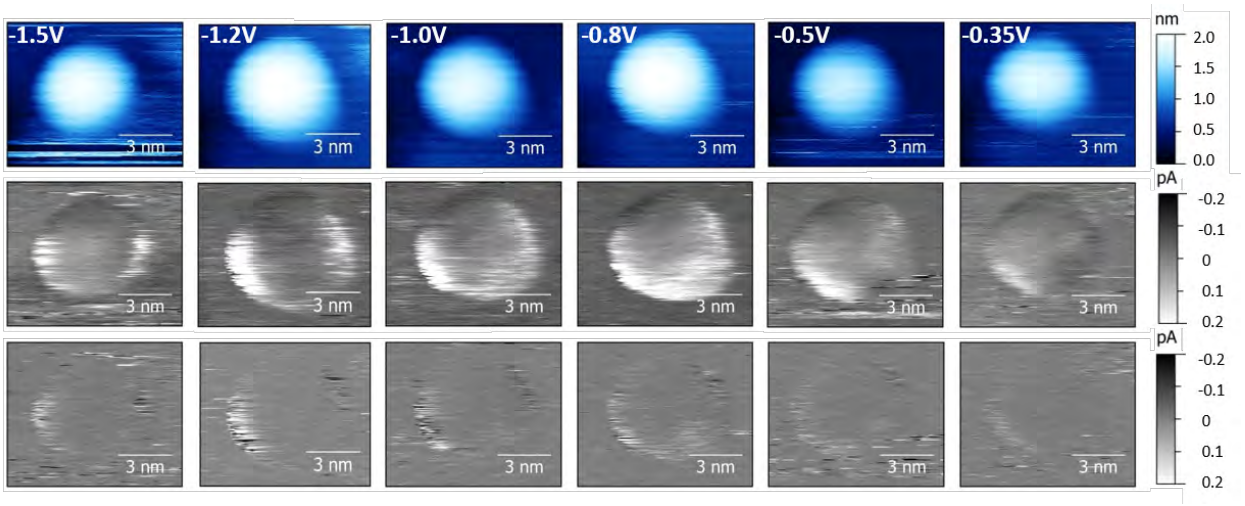

Figure S5: Additional STM topographs and in- and out-of-phase LIA images used for Figure 2 at negative bias.

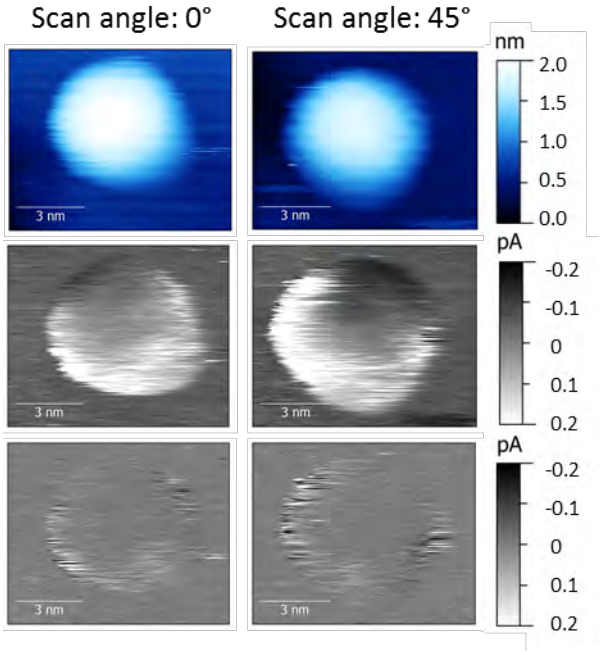

Figure S6: Topographic image and in- and out-of-phase LIA image for the QD seen in Figure 1 at different scan angles showing the absorption signal is independent of the fast scan direction, and is not a false signal caused by the tip movement over the QD. Scanning conditions: 10 pA, -0.8 V.

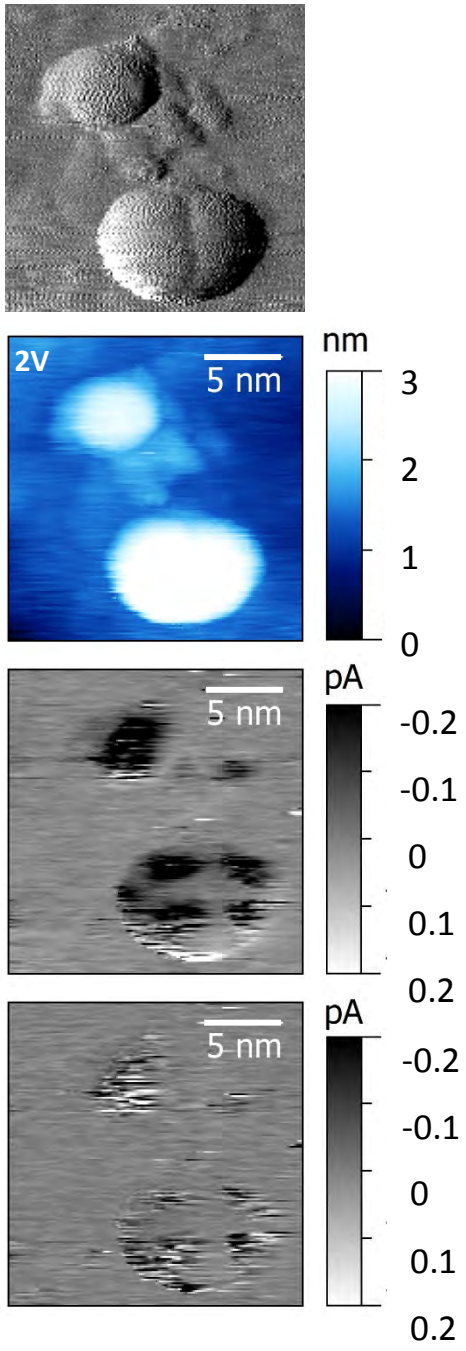

Figure S7: Topographic derivative, topographic and in- and out-of-phase LIA image for the QD seen in Figure 3.

Figure S8 illustrates the dependence of the observed signal on the excitation wavelength. The upper panels show a pair of quantum dots under green illumination, and the lower panels show the same pair subjected to 660 nm excitation The upper left and lower right panels were measured at the same electric field, and yet the SMA-STM signals are different: the right quantum dot in particular shows a nearly uniform signal at 660 nm (e.g. +/+ parity transition), and a more two-lobed signal at 532 nm (e.g. +/- parity transition). On the other hand, the higher energy excitation at the low field (top right) looks similar to the lower energy excitation at high field (bottom left). This is explained by noting that the same transition can be accessed by a smaller Stark shift (lower field) at higher laser energy, or a larger Stark shift (higher field) at lower laser energy.

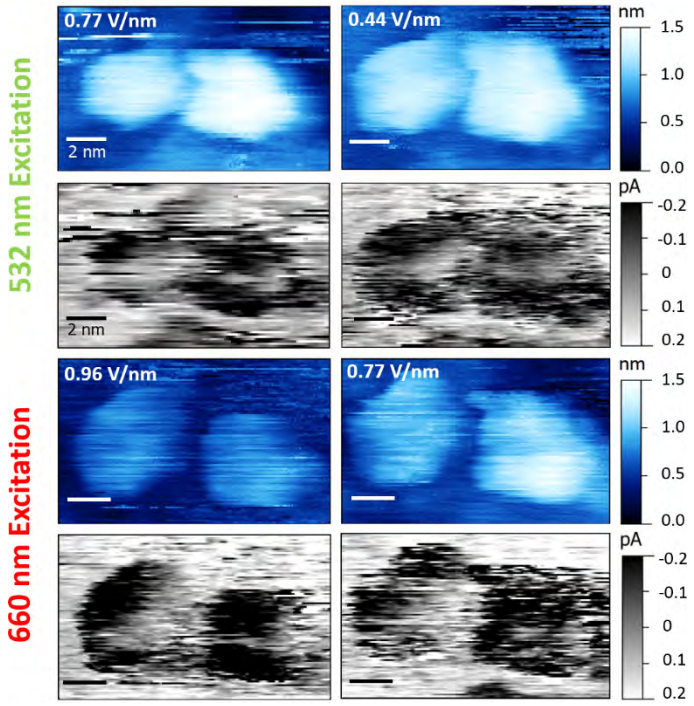

Figure S8: Topograph images of two more adjacent quantum dots with the corresponding in-phase LIA image below. Dots were deposited by DCT. Absorption signals as a result of green (532 nm) and red excitation (660 nm) and subjected to a variable electric field are compared. To compensate for the lower excitation energy at 660 nm a higher electric field is applied than at 532 nm to shift similar energy levels into resonance with the excitation laser. 5 pA tunneling currents; biases: 0.75 V yields approximately 0.44 V/nm; 1.5 V yields 0.77 V/nm; and 2 V yields 0.96 V/nm.

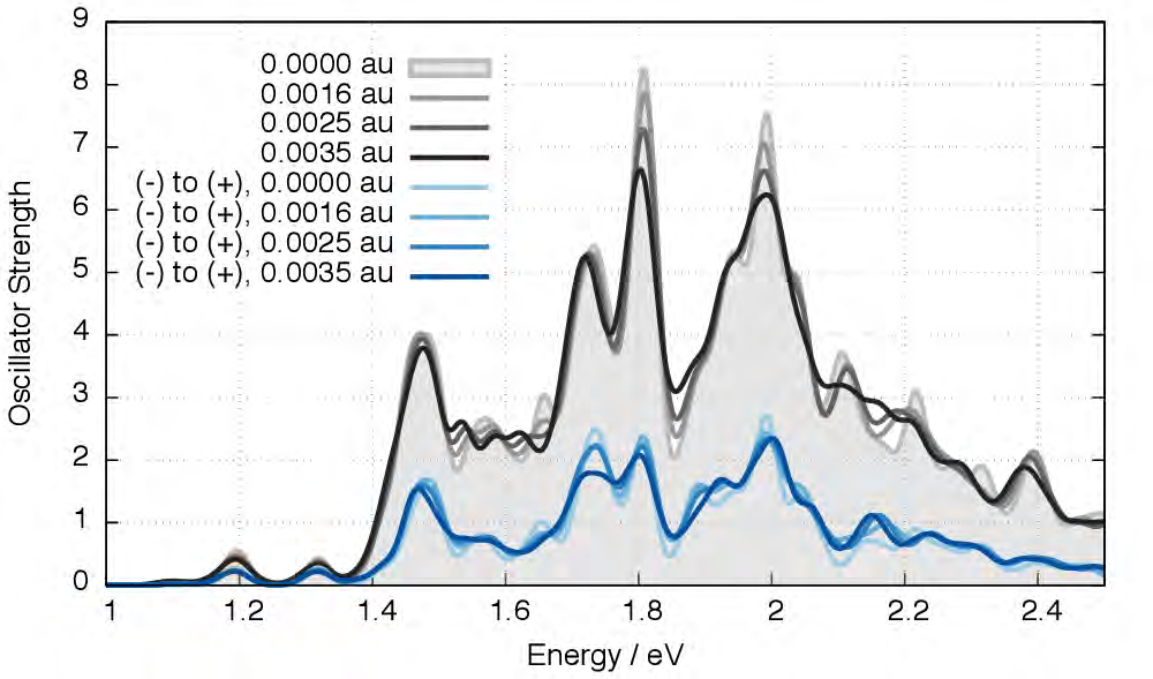

Figure S9: The effect of an increasing static field on the absorption spectra of the simulated PbS quantum dot. Uneven to even transitions are shown.

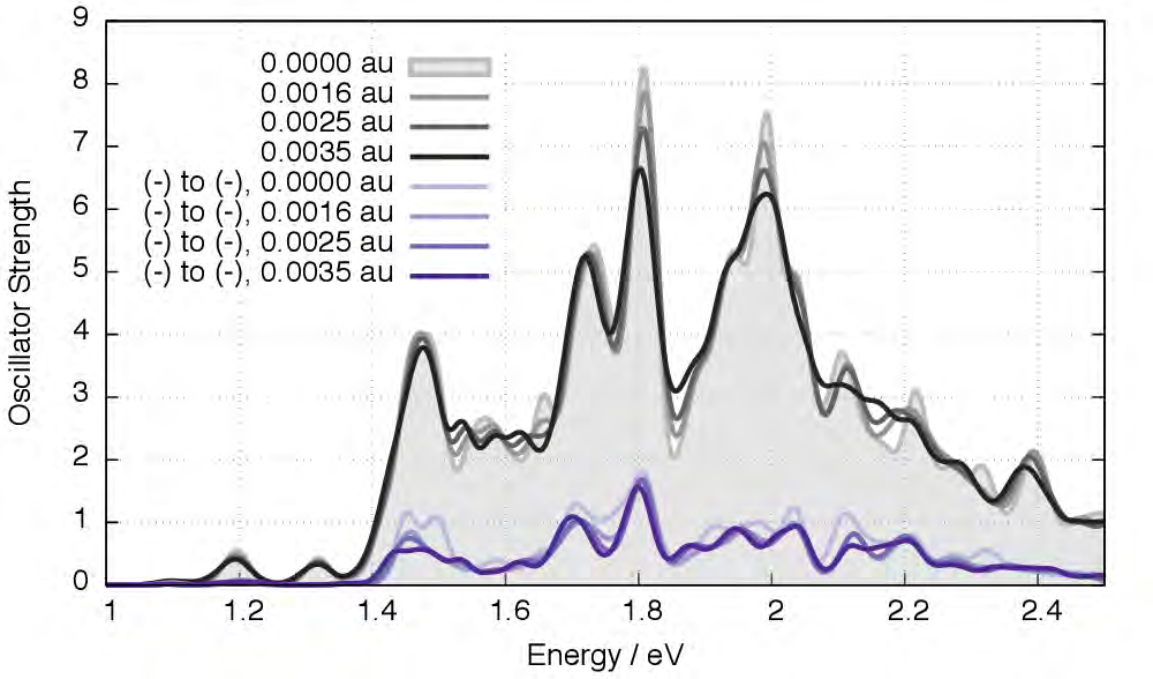

Figure S10: The effect of an increasing static field on the absorption spectra of the simulated PbS quantum dot. Uneven to uneven transitions are shown.

Table S1: Field: 0.0 au

E = -438.5153352538659

Standard orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	16	0	-0.918559	-4.804376	-0.328016
2	16	0	3.434975	-3.385393	-4.124846
3	82	0	-2.949441	-5.495387	1.427866
4	82	0	1.355867	-4.154681	-2.451166
5	82	0	0.886928	-6.215481	1.232138
6	82	0	5.187569	-4.710272	-2.546550
7	16	0	-1.124090	-6.793232	2.960779
8	16	0	3.224507	-5.404079	-0.819402
9	82	0	-0.631265	-4.568343	4.434823
10	82	0	3.808081	-3.173748	0.729990
11	82	0	0.457928	0.420382	7.429320
12	82	0	4.854531	1.852538	3.733373
13	16	0	0.174771	0.160488	2.835333
14	16	0	4.529364	1.571728	-1.024484
15	82	0	-0.390810	-2.361693	1.029155
16	82	0	4.032319	-1.021921	-2.793507
17	82	0	0.702167	2.590789	4.230970
18	82	0	5.066514	3.886651	0.402891
19	82	0	-1.974446	-0.541821	4.573220
20	82	0	2.363842	0.862409	0.677001
21	82	0	2.084086	-1.303642	4.366132
22	82	0	6.372945	0.205335	0.530811
23	16	0	-0.040149	-1.862571	6.066276
24	16	0	4.319298	-0.444134	2.276018
25	16	0	1.378796	-3.885800	2.651893
26	16	0	5.735370	-2.465052	-1.140570
27	16	0	2.470860	1.076172	5.745257
28	16	0	6.799384	2.480633	1.947656
29	16	0	-2.423173	-3.172181	2.845875
30	16	0	1.979826	-1.797771	-0.972015
31	16	0	-1.336570	1.790843	5.939511
32	16	0	3.024494	3.204093	2.149199
33	16	0	-4.814639	-1.836892	-3.703993
34	16	0	-0.460512	-0.423204	-7.468922
35	82	0	-6.763503	-2.466977	-1.936857
36	82	0	-2.489984	-1.085100	-5.792807
37	82	0	-3.000878	-3.336919	-2.228912
38	82	0	1.346322	-1.805201	-5.988540
39	16	0	-5.024795	-3.855645	-0.398554
40	16	0	-0.672327	-2.440649	-4.197905
41	82	0	-4.606689	-1.594245	1.159299
42	82	0	-0.160097	-0.147149	-2.596385
43	82	0	-3.463389	3.413889	4.157665
44	82	0	0.942836	4.900670	0.449132
45	16	0	-3.731252	3.122306	-0.603108
46	16	0	0.625861	4.529951	-4.400109
47	82	0	-4.382629	0.557628	-2.364216
48	82	0	0.040082	1.876110	-6.116616

49	82	0	-3.251547	5.448019	0.827189
50	82	0	1.118107	6.756935	-2.945477
51	82	0	-5.781791	2.486905	1.150852
52	82	0	-1.509622	3.919859	-2.731874
53	82	0	-1.812951	1.646429	0.890062
54	82	0	2.548927	3.158033	-2.938927
55	16	0	-3.941269	1.106453	2.697409
56	16	0	0.426736	2.578837	-1.124174
57	16	0	-2.581357	-0.941620	-0.739349
58	16	0	1.835047	0.493975	-4.518922
59	16	0	-1.433627	4.040928	2.376581
60	16	0	2.926592	5.450014	-1.416023
61	16	0	-6.321029	-0.201983	-0.525490
62	16	0	-1.966869	1.207618	-4.324961
63	16	0	-5.214781	4.735799	2.560546
64	16	0	-0.880943	6.164727	-1.221765

Table S2: Field: 0.0008 au

E = -438.5160100409339

Input orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	16	0	-0.012574	-0.007690	0.000744
2	16	0	0.008248	-0.001183	5.950105
3	82	0	0.029683	-0.008585	-2.778050
4	82	0	0.149706	0.057793	3.165665
5	82	0	0.531846	-2.725316	-0.018629
6	82	0	0.456253	-2.666401	5.900491
7	16	0	0.463141	-2.682578	-2.724126
8	16	0	0.496923	-2.698763	3.201253
9	82	0	-2.196595	-3.222461	-2.776664
10	82	0	-2.201215	-3.354131	3.170655
11	82	0	-8.033311	-4.192754	-2.695854
12	82	0	-8.083245	-4.276379	3.213824
13	16	0	-5.905659	-1.111266	-0.033577
14	16	0	-5.856433	-1.054429	5.956428
15	82	0	-2.818900	-0.409705	0.099821
16	82	0	-2.721732	-0.472751	6.095569
17	82	0	-8.717543	-1.535901	0.032850
18	82	0	-8.577168	-1.561880	5.984639
19	82	0	-5.833286	-1.010881	-2.888582
20	82	0	-5.771255	-0.925038	3.107172
21	82	0	-5.305692	-3.890693	0.034559
22	82	0	-5.365015	-3.778285	5.978339
23	16	0	-5.365494	-3.738000	-2.732657
24	16	0	-5.368403	-3.729790	3.211801
25	16	0	-2.202169	-3.179835	0.000697
26	16	0	-2.192529	-3.198231	5.952969
27	16	0	-8.063165	-4.233311	0.014379
28	16	0	-8.039574	-4.223390	5.936282
29	16	0	-2.699362	-0.497080	-2.730611
30	16	0	-2.627261	-0.545389	3.256806
31	16	0	-8.556080	-1.538438	-2.730403
32	16	0	-8.538963	-1.544550	3.220572
33	16	0	-1.057774	5.853984	0.016988
34	16	0	-1.075602	5.831208	5.940788
35	82	0	-1.087938	5.812702	-2.692804
36	82	0	-1.034780	5.887853	3.218724
37	82	0	-0.402786	3.154338	0.033287
38	82	0	-0.539282	3.169146	5.985746
39	16	0	-0.567254	3.158084	-2.729521
40	16	0	-0.580485	3.155803	3.221929
41	82	0	-3.290401	2.633462	-2.886051
42	82	0	-3.348736	2.538204	3.109027
43	82	0	-9.154807	1.628489	-2.765134
44	82	0	-9.270181	1.556007	3.174245
45	16	0	-6.917192	4.800431	0.010393
46	16	0	-6.923452	4.806708	5.964633
47	82	0	-3.813865	5.510959	0.040087
48	82	0	-3.750402	5.386458	5.984615
49	82	0	-9.651254	4.347984	-0.006273

50	82	0	-9.572287	4.274062	5.914533
51	82	0	-6.927077	4.843135	-2.766158
52	82	0	-6.917674	4.966563	3.183120
53	82	0	-6.301118	2.029289	0.107281
54	82	0	-6.394794	2.080281	6.103004
55	16	0	-6.425538	2.116607	-2.722053
56	16	0	-6.492685	2.157954	3.264813
57	16	0	-3.214300	2.731311	-0.030904
58	16	0	-3.259856	2.662473	5.958644
59	16	0	-9.107454	1.631331	0.014445
60	16	0	-9.124300	1.608727	5.960130
61	16	0	-3.756704	5.359436	-2.728069
62	16	0	-3.750090	5.342688	3.217789
63	16	0	-9.586436	4.302324	-2.712467
64	16	0	-9.616212	4.311659	3.215017

Table S3: Field: 0.0012 au

E = -438.5168532757807

Input orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	16	0	3.059853	8.760810	2.837109
2	16	0	3.062340	14.709141	2.842752
3	82	0	3.026487	5.988822	2.828671
4	82	0	2.912061	11.935666	2.873554
5	82	0	3.026502	8.752404	0.065124
6	82	0	3.100647	14.670919	0.138130
7	16	0	3.077016	6.039270	0.115548
8	16	0	3.062398	11.966273	0.100122
9	82	0	5.790078	5.988745	0.065032
10	82	0	5.835859	11.935438	-0.049928
11	82	0	11.708692	6.062049	0.138338
12	82	0	11.782592	11.980696	0.065084
13	16	0	9.047281	8.723746	2.800046
14	16	0	9.010696	14.711198	2.836859
15	82	0	5.900025	8.862203	2.938504
16	82	0	5.835753	14.859158	2.873690
17	82	0	11.897099	8.797397	2.873687
18	82	0	11.782632	14.744315	2.828609
19	82	0	8.973455	5.873880	2.873782
20	82	0	8.909080	11.870947	2.938442
21	82	0	8.973437	8.797511	-0.049798
22	82	0	9.019067	14.744423	0.064930
23	16	0	9.004072	6.024107	0.100410
24	16	0	9.010608	11.972448	0.098176
25	16	0	5.798485	8.760725	0.098244
26	16	0	5.805273	14.708917	0.100296
27	16	0	11.746815	8.766696	0.100263
28	16	0	11.732212	14.693750	0.115507
29	16	0	5.798459	6.021914	2.836996
30	16	0	5.761867	12.009315	2.799935
31	16	0	11.746808	6.023961	2.842966
32	16	0	11.749287	11.972287	2.837117
33	16	0	3.062314	8.766446	8.785435
34	16	0	3.077111	14.693602	8.769957
35	82	0	3.100623	6.061837	8.747190
36	82	0	3.026728	11.980459	8.820344
37	82	0	2.912025	8.797237	6.011965
38	82	0	3.026723	14.743996	6.056838
39	16	0	3.062372	6.023794	6.042569
40	16	0	3.060025	11.972005	6.048354
41	82	0	5.835850	5.873753	6.011711
42	82	0	5.900244	11.870676	5.947002
43	82	0	11.782567	5.988832	6.057013
44	82	0	11.897219	11.935542	6.011809
45	16	0	9.010661	8.760605	8.787496
46	16	0	9.004259	14.708972	8.785239
47	82	0	5.835741	8.797365	8.935477
48	82	0	5.790238	14.744127	8.820477

49	82	0	11.782599	8.752349	8.820635
50	82	0	11.708851	14.670905	8.747155
51	82	0	9.019060	5.988667	8.820749
52	82	0	8.973557	11.935525	8.935425
53	82	0	8.909068	8.862165	5.947247
54	82	0	8.973555	14.859144	6.011811
55	16	0	9.010597	6.021884	6.048776
56	16	0	9.047364	12.009302	6.085579
57	16	0	5.761834	8.723632	6.085632
58	16	0	5.798668	14.710951	6.048537
59	16	0	11.749264	8.760869	6.048602
60	16	0	11.746923	14.709049	6.042532
61	16	0	5.805259	6.023953	8.785223
62	16	0	5.798662	11.972198	8.787278
63	16	0	11.732200	6.039237	8.770042
64	16	0	11.746934	11.966244	8.785323

Table S4: Field: 0.0025 au

E = -438.5207343260140

Input orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	16	0	-0.009626	-0.011225	0.001839
2	16	0	0.014108	0.005145	5.958627
3	82	0	0.035544	-0.016008	-2.790563
4	82	0	0.150321	0.059011	3.154399
5	82	0	0.538429	-2.729272	-0.024376
6	82	0	0.455300	-2.657662	5.901567
7	16	0	0.463169	-2.688328	-2.715710
8	16	0	0.501737	-2.697331	3.212650
9	82	0	-2.190733	-3.237862	-2.778581
10	82	0	-2.195521	-3.355357	3.163123
11	82	0	-8.034776	-4.188960	-2.710652
12	82	0	-8.075265	-4.270469	3.189087
13	16	0	-5.905251	-1.106168	-0.027427
14	16	0	-5.854768	-1.055792	5.966872
15	82	0	-2.814957	-0.416361	0.091248
16	82	0	-2.717894	-0.474568	6.089082
17	82	0	-8.717205	-1.530758	0.017338
18	82	0	-8.570471	-1.566019	5.974633
19	82	0	-5.828820	-1.002156	-2.902016
20	82	0	-5.766664	-0.918543	3.096998
21	82	0	-5.305606	-3.886120	0.018149
22	82	0	-5.366069	-3.775061	5.966024
23	16	0	-5.364845	-3.724694	-2.732736
24	16	0	-5.362303	-3.721576	3.210005
25	16	0	-2.197610	-3.186995	0.015933
26	16	0	-2.186919	-3.199909	5.969782
27	16	0	-8.062893	-4.228600	0.013954
28	16	0	-8.039560	-4.230517	5.932650
29	16	0	-2.697634	-0.509277	-2.721682
30	16	0	-2.622024	-0.549335	3.262904
31	16	0	-8.549058	-1.530102	-2.729099
32	16	0	-8.533186	-1.541394	3.222379
33	16	0	-1.056179	5.848000	0.021185
34	16	0	-1.075240	5.841037	5.940690
35	82	0	-1.085456	5.806221	-2.702312
36	82	0	-1.041484	5.883724	3.198730
37	82	0	-0.402786	3.146660	0.024420
38	82	0	-0.547337	3.174847	5.981408
39	16	0	-0.575264	3.146211	-2.720727
40	16	0	-0.587452	3.153804	3.229871
41	82	0	-3.295136	2.622644	-2.891944
42	82	0	-3.354371	2.534270	3.103715
43	82	0	-9.161273	1.632478	-2.768874
44	82	0	-9.272951	1.557522	3.167517
45	16	0	-6.919081	4.805419	0.026611
46	16	0	-6.928081	4.810661	5.983277
47	82	0	-3.812212	5.506027	0.029271
48	82	0	-3.749410	5.385682	5.976805
49	82	0	-9.655571	4.353793	-0.011287

50	82	0	-9.571086	4.268816	5.919194
51	82	0	-6.929906	4.853970	-2.766579
52	82	0	-6.923084	4.968387	3.178980
53	82	0	-6.305451	2.033841	0.104510
54	82	0	-6.400575	2.082694	6.101426
55	16	0	-6.428335	2.123561	-2.707001
56	16	0	-6.499782	2.162758	3.276173
57	16	0	-3.215759	2.724469	-0.017644
58	16	0	-3.262623	2.666385	5.974599
59	16	0	-9.113000	1.635997	0.026892
60	16	0	-9.131399	1.606111	5.976179
61	16	0	-3.756472	5.343846	-2.722989
62	16	0	-3.755774	5.337625	3.220418
63	16	0	-9.584397	4.304878	-2.702458
64	16	0	-9.621562	4.312292	3.229814

Table S5: Field: 0.0035 au

E = -438.5290332528853

Input orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	16	0	-0.013028	-0.007442	0.011630
2	16	0	0.014694	0.001857	5.969720
3	82	0	0.035573	-0.008803	-2.791174
4	82	0	0.150487	0.052653	3.152136
5	82	0	0.539546	-2.725542	-0.027787
6	82	0	0.448946	-2.659902	5.905780
7	16	0	0.459106	-2.679696	-2.711245
8	16	0	0.501887	-2.702735	3.221694
9	82	0	-2.191166	-3.240122	-2.776738
10	82	0	-2.196496	-3.358385	3.158524
11	82	0	-8.035418	-4.189894	-2.715314
12	82	0	-8.077288	-4.271199	3.184130
13	16	0	-5.909399	-1.107078	-0.015917
14	16	0	-5.859570	-1.062861	5.978773
15	82	0	-2.816814	-0.414184	0.090844
16	82	0	-2.719015	-0.475145	6.087565
17	82	0	-8.721779	-1.533145	0.013485
18	82	0	-8.570492	-1.568111	5.973595
19	82	0	-5.827634	-0.997793	-2.904382
20	82	0	-5.767159	-0.922535	3.090698
21	82	0	-5.308359	-3.887497	0.014378
22	82	0	-5.369961	-3.777126	5.965661
23	16	0	-5.364563	-3.717026	-2.727881
24	16	0	-5.363738	-3.724780	3.215518
25	16	0	-2.196769	-3.183965	0.029088
26	16	0	-2.189876	-3.202434	5.980290
27	16	0	-8.063398	-4.231203	0.017270
28	16	0	-8.045453	-4.236908	5.936883
29	16	0	-2.698227	-0.510272	-2.712748
30	16	0	-2.621379	-0.553574	3.269943
31	16	0	-8.544736	-1.527681	-2.723259
32	16	0	-8.532607	-1.542165	3.227250
33	16	0	-1.060886	5.850908	0.027819
34	16	0	-1.067123	5.844185	5.943690
35	82	0	-1.091354	5.815733	-2.704811
36	82	0	-1.038926	5.882532	3.190121
37	82	0	-0.400981	3.151621	0.015450
38	82	0	-0.540737	3.176101	5.975686
39	16	0	-0.582240	3.153349	-2.721340
40	16	0	-0.581451	3.153243	3.229181
41	82	0	-3.297600	2.623716	-2.897682
42	82	0	-3.347536	2.533322	3.095380
43	82	0	-9.165720	1.629714	-2.778699
44	82	0	-9.267398	1.558460	3.155995
45	16	0	-6.924910	4.805311	0.029859
46	16	0	-6.922647	4.809850	5.984636
47	82	0	-3.816695	5.508010	0.026096
48	82	0	-3.742396	5.383679	5.974967
49	82	0	-9.661417	4.350942	-0.023028

50	82	0	-9.561770	4.266041	5.915094
51	82	0	-6.934326	4.860728	-2.774567
52	82	0	-6.920021	4.967584	3.165914
53	82	0	-6.307683	2.034114	0.093238
54	82	0	-6.393330	2.081209	6.089475
55	16	0	-6.432658	2.129630	-2.710500
56	16	0	-6.493626	2.162461	3.271739
57	16	0	-3.214513	2.727841	-0.009969
58	16	0	-3.251066	2.670216	5.984082
59	16	0	-9.113130	1.631996	0.028467
60	16	0	-9.125258	1.605283	5.977839
61	16	0	-3.762252	5.341271	-2.717110
62	16	0	-3.752003	5.333963	3.224649
63	16	0	-9.585839	4.301615	-2.704895
64	16	0	-9.617960	4.312434	3.231084

Table S6: Field: 0.0050 au

E = -438.5467020562469

Input orientation:

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	16	0	0.000443	-0.012678	0.031782
2	16	0	0.022543	-0.008325	5.986120
3	82	0	0.049772	-0.003628	-2.791929
4	82	0	0.155114	0.048056	3.141256
5	82	0	0.550844	-2.732043	-0.040846
6	82	0	0.447981	-2.666768	5.902713
7	16	0	0.463164	-2.673783	-2.711896
8	16	0	0.503051	-2.708514	3.225521
9	82	0	-2.182781	-3.242647	-2.788428
10	82	0	-2.194230	-3.360635	3.145283
11	82	0	-8.024709	-4.189541	-2.723830
12	82	0	-8.076890	-4.262240	3.163585
13	16	0	-5.899976	-1.100390	-0.004334
14	16	0	-5.862428	-1.061339	5.995632
15	82	0	-2.806124	-0.418217	0.088657
16	82	0	-2.710631	-0.484647	6.085143
17	82	0	-8.713419	-1.529242	0.005492
18	82	0	-8.568516	-1.567545	5.968193
19	82	0	-5.819093	-0.987393	-2.913263
20	82	0	-5.765733	-0.914658	3.086101
21	82	0	-5.298136	-3.881415	0.009327
22	82	0	-5.377434	-3.771906	5.962486
23	16	0	-5.354493	-3.703563	-2.719750
24	16	0	-5.366343	-3.716718	3.221342
25	16	0	-2.186051	-3.189287	0.034052
26	16	0	-2.186417	-3.213779	5.990300
27	16	0	-8.053956	-4.226273	0.024008
28	16	0	-8.053240	-4.237387	5.939782
29	16	0	-2.685525	-0.509057	-2.701314
30	16	0	-2.614377	-0.557530	3.276594
31	16	0	-8.528705	-1.523607	-2.719776
32	16	0	-8.529540	-1.533796	3.228900
33	16	0	-1.065441	5.848087	0.023564
34	16	0	-1.060972	5.842344	5.943002
35	82	0	-1.098321	5.812759	-2.722096
36	82	0	-1.041718	5.872605	3.169610
37	82	0	-0.406998	3.149295	0.006605
38	82	0	-0.546661	3.170526	5.969905
39	16	0	-0.597696	3.145901	-2.719401
40	16	0	-0.588880	3.144338	3.231393
41	82	0	-3.307010	2.614124	-2.908457
42	82	0	-3.353834	2.525638	3.089577
43	82	0	-9.177700	1.628294	-2.781890
44	82	0	-9.274703	1.565202	3.148913
45	16	0	-6.932125	4.810756	0.037556
46	16	0	-6.925886	4.819644	5.995760
47	82	0	-3.821256	5.503127	0.015540
48	82	0	-3.737605	5.376633	5.968931
49	82	0	-9.669718	4.355354	-0.029549

50	82	0	-9.560975	4.274760	5.913612
51	82	0	-6.942963	4.865186	-2.782982
52	82	0	-6.922918	4.971384	3.154183
53	82	0	-6.315268	2.038241	0.093663
54	82	0	-6.405164	2.087721	6.090053
55	16	0	-6.442544	2.129790	-2.696403
56	16	0	-6.503583	2.167749	3.282015
57	16	0	-3.218984	2.721992	0.001192
58	16	0	-3.252546	2.667102	5.999641
59	16	0	-9.120705	1.635115	0.043219
60	16	0	-9.137872	1.616304	5.995184
61	16	0	-3.770352	5.328536	-2.714538
62	16	0	-3.752344	5.326813	3.227021
63	16	0	-9.589787	4.297518	-2.701435
64	16	0	-9.621173	4.320024	3.235983