Supplemental material for

*Fock space coupled cluster study of
the $1^1\Pi_g$ state of the Li_2 molecule*

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Table 1. The centrifugal distortion constants (cm^{-1}) of the first 32 vibrational states for the $1^1\Pi_g$ state of the Li_2 molecule (FS-CCSD (2,0)/ANO-RCC+).

v	$-D_v$	H_v	L_v	M_v	N_v	O_v
0	-1.1357873D-05	1.4298529D-10	-1.6698001D-15	-3.4378483D-19	2.6034736D-23	1.7896263D-26
1	-1.1145085D-05	1.2952362D-10	1.3109399D-15	6.2864647D-19	-4.0916435D-22	-8.0222623D-26
2	-1.0902312D-05	1.2605402D-10	-1.0649954D-14	-5.1336936D-19	9.8503302D-22	4.9797236D-26
3	-1.0750123D-05	1.1806521D-10	-1.2884440D-15	-3.6284578D-18	-2.4382597D-21	2.8036031D-25
4	-1.0615233D-05	6.0859817D-11	-2.4521556D-14	5.8452988D-18	3.7941070D-21	-5.6849201D-25
5	-1.0598704D-05	7.3564848D-11	6.6332392D-15	6.1180656D-19	-3.2572098D-21	-1.1373827D-24
6	-1.0492053D-05	8.5079665D-11	-2.9208554D-14	-1.9567622D-17	4.3060039D-21	6.1004939D-24
7	-1.0513355D-05	-4.7820562D-12	2.0674464D-14	3.0735978D-17	-1.2923025D-20	-1.4946122D-23
8	-1.0441260D-05	3.5027816D-11	-8.6845747D-14	-4.4316283D-17	4.3319066D-20	2.6394027D-23
9	-1.0601515D-05	-1.7586513D-11	1.3014401D-13	-7.8744921D-18	-1.1284967D-19	-3.4052004D-24
10	-1.0522910D-05	-2.1254266D-10	-1.5681416D-13	1.7129041D-16	1.1393569D-19	-8.4427679D-23
11	-1.0647146D-05	1.0855943D-10	-7.7098048D-14	-2.2119238D-16	3.2842108D-20	1.4013426D-22
12	-1.0799458D-05	-9.7656435D-11	1.3833848D-13	7.4285429D-17	-1.7951856D-19	-9.7721984D-23
13	-1.0781739D-05	-2.0304741D-10	-2.8139909D-13	6.3179986D-17	2.8030884D-19	-1.7728091D-23
14	-1.1124580D-05	-1.6473829D-11	1.4100633D-13	-3.2729013D-16	-2.3309060D-19	2.7129610D-22
15	-1.1303453D-05	-3.8767729D-10	1.9676570D-13	5.2206706D-16	-1.3589536D-19	-5.5317095D-22
16	-1.1112571D-05	-1.3424947D-11	-5.8816350D-13	-5.2040303D-16	6.3269059D-19	6.8042702D-22
17	-1.1629473D-05	-2.8061038D-10	7.9860509D-13	1.9844635D-16	-1.2878144D-18	-4.5777683D-22
18	-1.1331941D-05	-5.5526142D-10	-8.3221113D-13	7.9762710D-16	1.5867037D-18	-8.1549226D-22
19	-1.1545189D-05	2.8419220D-10	-1.1229765D-13	-1.7591776D-15	-1.4946971D-19	2.5227267D-21
20	-1.1838833D-05	-5.9453284D-10	9.0090784D-13	9.0355718D-16	-2.0315791D-18	-1.5363308D-21
21	-1.1606271D-05	-4.0768535D-10	-4.4055181D-13	9.3167574D-16	1.3605713D-18	-1.7154036D-21
22	-1.1427863D-05	-1.0364191D-11	-5.8322662D-13	-1.0403399D-15	9.5454416D-19	2.1726442D-21
23	-1.1569399D-05	-4.2234642D-10	3.3000344D-13	9.7256988D-17	-1.1130635D-18	4.6806269D-22
24	-1.1429990D-05	-6.2187363D-11	4.2237237D-13	1.8331438D-17	-2.0443124D-18	-2.1800877D-21
25	-1.1179253D-05	-9.5014066D-10	-1.0435016D-12	2.9194296D-15	4.8348771D-18	-5.1694955D-21
26	-1.0972096D-05	7.4928914D-10	-8.4939358D-13	-5.3774580D-15	1.4428648D-18	1.4895870D-20
27	-1.1045987D-05	-3.5469842D-10	2.5801641D-12	1.5056340D-15	-1.2826601D-17	-1.0552591D-20
28	-1.0602138D-05	-1.6285596D-09	-2.2485417D-12	8.7323754D-15	1.5239092D-17	-2.5285793D-20
29	-1.0188742D-05	1.6825501D-09	-1.6514027D-12	-9.2959946D-15	1.1147364D-17	2.9678113D-20
30	-9.6458849D-06	-8.7446128D-11	-1.9888822D-12	-8.2692164D-15	-8.2233710D-19	4.1513110D-20
31	-1.0755850D-05	-1.4141675D-09	2.3886188D-12	-1.2510704D-14	-5.4347262D-17	-1.4951397D-20