Table I

$$
\begin{aligned}
\kappa_1 &= -0.30104661 & \alpha_1 &= 2.1810429\cdot 10^{-2}\\
\kappa_2 &= -6.3319840\cdot 10^{-3} & \alpha_2 &= 7.5714590\cdot 10^{-2}\\
\kappa_3 &= 5.6289546\cdot 10^{-4} & \alpha_3 &= 1.1130266\cdot 10^{-4}\\
\kappa_4 &= -1.5687855\cdot 10^{-3} & \alpha_4 &= -2.1475176\cdot 10^{-4}\\
\kappa_5 &= 4.9676959\cdot 10^{-5} & \alpha_5 &= -1.2775652\cdot 10^{-3}\\
\kappa_6 &= -5.5172502\cdot 10^{-5} & & \\
\kappa_7 &= -1.2423581\cdot 10^{-3} & & \\
\kappa_8 &= 1.1130266\cdot 10^{-4} & p &= 1.059728073\cdot 10^{-3}\\
\kappa_9 &= -2.1475176\cdot 10^{-4} & q &= 2.844952587\cdot 10^{-4}\\
\kappa_{10} &= -1.2775652\cdot 10^{-3} & r &= 2.533812424\cdot 10^{-4}
\end{aligned}
$$

Coefficients for the effective potential (eqs. (2.15), (2.16) and (3.2)) and the effective Hamiltonian (eqs. (3.1) and (3.3)).

Table II

$$
\begin{aligned}
\gamma_1(g) &= -0.30104661 & -0.30104661 & \quad (g/2\pi)^2\\
\gamma_2(g) &= -1.4488847\cdot 10^{-3} & -9.9096768\cdot 10^{-3} & \quad (g/2\pi)^2\\
\gamma_3(g) &= 1.2790086\cdot 10^{-2} & +3.6765224\cdot 10^{-2} & \quad (g/2\pi)^2\\
\gamma_4(g) &= 4.9676959\cdot 10^{-5} & +5.2925358\cdot 10^{-5} & \quad (g/2\pi)^2\\
\gamma_5(g) &= -5.5172502\cdot 10^{-5} & +1.8496841\cdot 10^{-4} & \quad (g/2\pi)^2\\
\gamma_6(g) &= -1.2423581\cdot 10^{-3} & -5.7110724\cdot 10^{-3} & \quad (g/2\pi)^2\\
\gamma_7(g) &= -9.8738947\cdot 10^{-7} & -5.1311245\cdot 10^{-6} & \quad (g/2\pi)^2\\
\gamma_8(g) &= 9.1911536\cdot 10^{-6} & +9.1452409\cdot 10^{-5} & \quad (g/2\pi)^2\\
\gamma_9(g) &= -2.7911565\cdot 10^{-5} & -2.5203366\cdot 10^{-5} & \quad (g/2\pi)^2\\
\gamma_{10}(g) &= 1.8208802\cdot 10^{-5} & +6.0939067\cdot 10^{-5} & \quad (g/2\pi)^2
\end{aligned}
$$

Coefficients to two loops for the vacuum-valley effective potential V_l (eq. (5.18)).

Table III

$$|q_1 q_2 q_3; A_1^P> = \frac{N_q}{\sqrt{6}} \sum_{\pi \in S_3} |q_{\pi(1)} q_{\pi(2)} q_{\pi(3)}> \quad ,$$
$$q_1 \geq q_2 \geq q_3 \ , \quad (-1)^{l_i} = P \ , \quad \vec{e} = \vec{0} \ ;$$

$$|q_1 q_2 q_3; A_2^P> = \frac{1}{\sqrt{6}} \sum_{\pi \in S_3} \mathrm{sg}\pi \, |q_{\pi(1)} q_{\pi(2)} q_{\pi(3)}> \quad ,$$
$$q_1 > q_2 > q_3 \ , \quad (-1)^{l_i} = P \ , \quad \vec{e} = \vec{0} \ ;$$

$$|q_1 q_2 q_3; E^P> = N_q \left(\frac{1}{\sqrt{3}} |q_1 q_2 q_3> - \frac{1}{2} |q_1 q_3 q_2> + \frac{1}{2} |q_3 q_2 q_1> - \frac{1}{2\sqrt{3}} |q_2 q_3 q_1> - \frac{1}{2\sqrt{3}} |q_3 q_1 q_2> \right) \quad ,$$
$$q_1 > q_3, \ q_2 \geq q_3 \ , \quad (-1)^{l_i} = P \ , \quad \vec{e} = \vec{0} \ ;$$

$$|q_1 q_2 q_3; T_1^P> = \frac{1}{\sqrt{2}} (|q_1 q_2 q_3> - |q_2 q_1 q_3>) \quad ;$$
$$q_1 > q_2 \ , \quad (-1)^{l_1+1} = (-1)^{l_2+1} = (-1)^{l_3} = P \ , \quad \vec{e} = \vec{0} \quad ;$$

$$|q_1 q_2 q_3; T_2^P> = \frac{N_q}{\sqrt{2}} (|q_1 q_2 q_3> + |q_2 q_1 q_3>) \quad ;$$
$$q_1 \geq q_2 \ , \quad (-1)^{l_1+1} = (-1)^{l_2+1} = (-1)^{l_3} = P \ , \quad \vec{e} = \vec{0} \quad ;$$

$$|q_1 q_2 q_3; e_1^P> = \frac{N_q}{\sqrt{2}} (|q_1 q_2 q_3> + |q_2 q_1 q_3>) \quad ;$$
$$q_1 \geq q_2 \ , \quad (-1)^{l_i} = P \ , \quad \vec{e} = (0,0,1) \quad ;$$

$$|q_1 q_2 q_3; e_2^P> = \frac{N_q}{\sqrt{2}} (|q_1 q_2 q_3> + |q_2 q_1 q_3>) \quad ;$$
$$q_1 \geq q_2 \ , \quad (-1)^{l_i} = P \ , \quad \vec{e} = (1,1,0) \quad ;$$

$$|q_1 q_2 q_3; e_3^P> = \frac{N_q}{\sqrt{6}} \sum_{\pi \in S_3} |q_{\pi(1)} q_{\pi(2)} q_{\pi(3)}> \quad ,$$
$$q_1 \geq q_2 \geq q_3 \ , \quad (-1)^{l_i} = P \ , \quad \vec{e} = (1,1,1) \ ;$$

Projection of the basis onto the irreducible representations. For each, only one element of the $O(3,Z)$ orbit is given. N_q is a normalisation factor different from 1 if some q_i's are equal.

Table IV

g	$E(0,0,0)$	$E(1,1,1)$	$f(g)$	$\bar{E}$	E_{LM}	ΔE
0.5	2.09420(−45)	2.09414(−197)		2.0941(−30)	2.09257	
0.55	2.19391(−253)	2.19398(−98)		2.1939(−17)	2.19186	$0.00007\binom{+253}{-98}$
0.6	2.28578(−188)	2.28621(−79)		2.2860(−13)	2.28329	$0.00043\binom{+488}{-79}$
0.65	2.37026(−205)	2.37166(−77)	$-0.5277\binom{+5772}{-2806}$	2.3709(−10)	2.36752	$0.00140\binom{+250}{-78}$
0.7	2.44756(−269)	2.45119(−77)	$-0.5470\binom{+1220}{-1928}$	2.4493(−17)	2.44507	$0.00363\binom{+269}{-77}$
0.8	2.58031(−562)	2.59621(−61)	$-0.5744\binom{+170}{-1112}$	2.5882(−31)	2.58194	$0.01590\binom{+562}{-61}$
0.9	2.68229(−966)	2.72917(−41)	$-0.5956\binom{+36}{-691}$	2.7057(−50)	2.69679	$0.04688\binom{+966}{-41}$
1.0	2.75241(−1387)	2.85796(−22)	$-0.6113\binom{+8}{-451}$	2.8051(−70)	2.79179	$0.10555\binom{+1387}{-22}$
1.1	2.79242(−1271)	2.98977(−10)	$-0.6217\binom{+2}{-229}$	2.8911(−64)	2.86861	$0.19735\binom{+1271}{-10}$
1.2	2.80665(−1108)	3.13086(−4)	$-0.6262\binom{+1}{-123}$	2.9687(−55)	2.92859	$0.32421\binom{+1108}{-4}$
1.3	2.80000(−612)	3.28663(−4)	$-0.6242\binom{+1}{-47}$	3.0433(−31)	2.97280	$0.48663\binom{+612}{-4}$
1.4	2.77661(−378)	3.46178(−3)	$-0.6153\binom{+1}{-21}$	3.1192(−11)	3.00212	$0.68517\binom{+378}{3}$
1.6	2.6908	3.8854	−0.5741	3.2881	3.01893	1.1946
1.8	2.5652	4.4238	−0.4930	3.4945	2.98364	1.8586
2.0	2.4129	5.0847	−0.3538	3.7488	2.89967	2.6718
2.2	2.2513	5.8639	−0.1224	4.0576	2.76958	3.6126
2.4	2.1011	6.7498	+0.2621	4.4255	2.59534	4.6487
2.6	1.9807	7.7276	+0.9040	4.8542	2.37849	5.7469

Type I(A&B) Rayleigh Ritz results for the groundstate energies with $\vec{e} = \vec{0}$ and $\vec{e} = (1,1,1)$. The perturbative factor $f(g)$ is defined in eq. (6.4), while E_{LM} is given in eq. (6.3). and $\bar{E}$ is an abreviation for $(E(0,0,0) + E(1,1,1)) \,/\, 2$. Where no bounds are quoted they are (far) better than the last ones tabulated.

Table V

g	$E(0,0,0)$	$E(1,1,1)$	$f'(g)$	$\bar{E}$	$g^{2/3}\varepsilon$	ΔE
0.65	3.08974(−1218)	3.0891(−72)		3.08943(−65)	3.09064	
0.7	3.245459(−19)	3.245564(−12)	$2.1884\binom{+4114}{-4883}$	3.245512(−16)	3.245513	$.000105\binom{+19}{-12}$
0.8	3.54724(−3)	3.54808(−1)	$2.4510\binom{+411}{-1190}$	3.54766(−2)	3.547682	$0.00084\binom{+3}{-1}$
0.9	3.83535(−8)	3.83941(−4)	$2.7290\binom{+368}{-723}$	3.83738(−6)	3.837482	$0.00406\binom{+8}{-4}$
1.0	4.10939(−24)	4.12310(−4)	$3.0625\binom{+118}{-711}$	4.11625(−14)	4.116720	$0.01371\binom{+24}{-4}$
1.1	4.36712(−75)	4.40369(−4)	$3.3509\binom{+48}{-892}$	4.38541(−40)	4.386786	$0.03657\binom{+75}{-4}$
1.2	4.60504(−18)	4.68621(−6)	$3.6364\binom{+34}{-103}$	4.64563(−12)	4.648778	$0.08117\binom{+18}{-6}$
1.3	4.81977(−29)	4.97615(−6)	$3.9325\binom{+19}{-91}$	4.89796(−18)	4.903583	$0.15638\binom{-29}{-6}$
1.4	5.00887(−43)	5.27902(−7)	$4.2459\binom{+14}{-83}$	5.14395(−25)	5.151930	$0.27015\binom{+43}{-7}$
1.5	5.17151(−65)	5.60011(−8)	$4.5912\binom{+10}{-85}$	5.38581(−37)	5.394429	$0.42860\binom{+65}{-8}$
1.6	5.30831(−84)	5.94422(−9)	$4.9907\binom{+8}{-79}$	5.62627(−47)	5.631593	$0.63591\binom{+84}{-9}$
1.7	5.42091(−103)	6.31550(−11)	$5.4695\binom{+8}{-74}$	5.86821(−57)	5.863864	$0.89459\binom{+103}{-11}$
1.8	5.51160(−121)	6.71734(−11)	$6.0592\binom{+8}{-71}$	6.11447(−66)	6.091622	$1.20574\binom{+121}{-11}$
1.9	5.58317(−137)	7.15231(−10)	$6.7983\binom{+5}{-68}$	6.36774(−74)	6.315199	$1.56914\binom{+137}{-10}$
2.0	5.63886(−150)	7.62228(−10)	$7.7380\binom{+4}{-66}$	6.63057(−80)	6.634885	$1.98342\binom{+150}{-10}$

Type III(A&B) Rayleigh-Ritz results for the groundstate energies with $\vec{e} = \vec{0}$ and $\vec{e} = (1,1,1)$. The perturbative factors $f'(g)$ and ε are defined in eqs. (6.2) and (6.6), and $\bar{E}$ is $(E(0,0,0) + E(1,1,1)) \,/\, 2$.

Table VI

		$g = 1.0$	$g = 1.5$	$g = 2.0$	$g = 2.6$
A_1^+	$r_3 = \pi$	0.9607 $5.590 \cdot 10^{-2}$	0.9482 $2.387 \cdot 10^{-1}$	0.9173 $3.767 \cdot 10^{-1}$	0.92840 $5.0952 \cdot 10^{-1}$
A_1^{+*}	$r_3 = \pi$	0.9856 $3.752 \cdot 10^{-1}$	0.9667 $5.865 \cdot 10^{-1}$	0.9182 $6.702 \cdot 10^{-1}$	0.8858 $6.935 \cdot 10^{-1}$
A_1^-	$r_3 = \pi$	0.8951 $6.801 \cdot 10^{-3}$	0.8938 $4.167 \cdot 10^{-1}$	0.8898 $4.167 \cdot 10^{-1}$	0.9709 $6.659 \cdot 10^{-1}$
E^+	$r_1 = \pi$	0.9456 $1.026 \cdot 10^{-1}$	0.9407 $2.866 \cdot 10^{-1}$	0.9208 $4.404 \cdot 10^{-1}$	0.9522 $5.621 \cdot 10^{-1}$
	$r_2 = \pi$	0.9586 $5.112 \cdot 10^{-1}$	0.9542 $5.968 \cdot 10^{-1}$	0.9583 $6.195 \cdot 10^{-1}$	0.9769 $6.331 \cdot 10^{-1}$
	$r_3 = \pi$	0.9564 $3.069 \cdot 10^{-1}$	0.9498 $4.417 \cdot 10^{-1}$	0.9428 $5.299 \cdot 10^{-1}$	0.96530 $5.9763 \cdot 10^{-1}$
T_1^+	$r_1 = \pi$	0.9753 $7.571 \cdot 10^{-1}$	0.9740 $7.007 \cdot 10^{-1}$	0.9717 $4.669 \cdot 10^{-1}$	0.9277 $4.053 \cdot 10^{-1}$
	$r_3 = \pi$	0.9797 $9.179 \cdot 10^{-2}$	0.9622 $3.101 \cdot 10^{-1}$	0.9202 $4.565 \cdot 10^{-1}$	0.8664 $5.671 \cdot 10^{-1}$
T_2^+	$r_1 = \pi$	0.9789 $6.840 \cdot 10^{-1}$	0.9722 $6.456 \cdot 10^{-1}$	0.9670 $1.018 \cdot 10^{-0}$	0.9608 $8.114 \cdot 10^{-1}$
	$r_3 = \pi$	0.9840 $7.463 \cdot 10^{-2}$	0.9739 $2.569 \cdot 10^{-1}$	0.9350 $3.716 \cdot 10^{-1}$	0.8953 $4.901 \cdot 10^{-1}$
e_1^+	$r_1 = 3$	0.9667 $6.340 \cdot 10^{-2}$	0.9530 $2.648 \cdot 10^{-1}$	0.9444 $5.627 \cdot 10^{-1}$	0.9730 $7.536 \cdot 10^{-1}$
	$r_3 = 3$	0.9353 $1.671 \cdot 10^{-3}$	0.8959 $4.135 \cdot 10^{-3}$	0.8650 $6.378 \cdot 10^{-3}$	0.9284 $8.571 \cdot 10^{-3}$
e_2^+	$r_1 = 3$	0.9310 $1.635 \cdot 10^{-3}$	0.8937 $4.841 \cdot 10^{-3}$	0.9144 $4.537 \cdot 10^{-3}$	0.9707 $5.258 \cdot 10^{-3}$
	$r_3 = 3$	0.9631 $6.245 \cdot 10^{-2}$	0.9472 $3.306 \cdot 10^{-1}$	0.9580 $5.271 \cdot 10^{-1}$	0.9874 $6.281 \cdot 10^{-1}$
e_3^+	$r_3 = 3$	0.9318 $1.855 \cdot 10^{-3}$	0.8972 $6.258 \cdot 10^{-3}$	0.9293 $1.011 \cdot 10^{-2}$	0.9808 $1.240 \cdot 10^{-2}$

Adiabaticity parameter (upper number) and integral of the wavefunction squared (lower number) for the states in column 1 and surfaces in column 2. Note A_1^{+*} is the first excited A_1^+ state. The adiabaticity parameter on the surface $r_i \simeq \pi$ is 1 minus the quantity p_i defined in eq. (4.16).

Table VII

g	A_1^+	$(A_1^+)'$	A_1^-	E^+	T_2^+	T_2^+	e_1^+	e_2^+	e_3^+
0.8	2.580(6)	3.540(450)	6.416(6)	3.458(165)		3.547(565)	2.586(15)	2.593(15)	2.596(1)
0.9	2.682(10)	3.651(550)	6.831(2)	3.558(142)		3.630(511)	2.698(10)	2.714(8)	2.729(1)
1.0	2.752(14)	3.763(650)	7.208(0)	3.656(72)	4.651(490)	3.661(472)	2.786(7)	2.821(4)	2.858(0)
1.1	2.792(13)	3.878(450)	7.544(0)	3.761(31)		3.690(325)	2.853(5)	2.919(2)	2.990(0)
1.2	2.806(11)	3.999(350)	7.833(0)	3.873(18)	5.216(28)	3.719(151)	2.904(3)	3.010(1)	3.131(0)
1.3	2.800(6)	4.134(132)	8.070(1)	3.996(9)		3.750(73)	2.942(2)	3.100(0)	3.287(0)
1.4	2.776(4)	4.285(83)	8.255(1)	4.131(6)	5.919(8)	3.783(22)	2.971(1)	3.192(0)	3.462(0)
1.5	2.739(2)	4.454(33)	8.390(1)	4.280(4)	6.323(6)	3.783(9)	2.996(1)	3.290(0)	3.660(0)
1.6	2.691(2)	4.641(12)	8.481(1)	4.444(3)	6.763(5)	3.857(7)	3.018(1)	3.399(0)	3.885(0)
1.8	2.565(1)	5.074(4)	8.552(2)	4.823(3)	7.754(4)	3.957(5)	3.068(1)	3.660(0)	4.424(0)
2.0	2.413(1)	5.590(2)	8.526(2)	5.277(2)	8.887(3)	4.073(4)	3.141(1)	3.999(0)	5.085(0)
2.2	2.251(1)	6.194(1)	8.481(2)	5.815(2)	10.157(3)	4.235(3)	3.256(1)	4.428(0)	5.864(0)
2.4	2.101(1)	6.884(1)	8.488(1)	6.442(1)	11.554(3)	4.446(3)	3.428(1)	4.948(0)	6.750(0)
2.6	1.981(1)	7.652(1)	8.594(1)	7.159(1)	13.071(4)	4.714(2)	3.663(1)	5.554(0)	7.728(0)
2.8	1.902(1)	8.486(1)		7.961(1)			3.961(1)		
3.0	1.870(1)	9.376(1)		8.837(1)			4.318(1)		
3.2	1.885(1)	10.314(1)		9.776(1)			4.725(1)		
3.4	1.942(1)	11.293(1)		10.767(1)			5.176(1)		

Type I(A&B) results for the energies of the lowest states in the listed $0(3,Z)$ symmetry sectors, as well as for $(A_1^+)'$, the first excited state in the A_1^+ sector. The lowerbound is obtained by subtracting the digits in parenthesis.

Table VIII

g	A_1^+	$(A_1^+)'$	A_1^-	E^+	T_1^+	T_2^+	e_1^+	e_2^+	e_3^+
0.8	2.558	3.486	6.389	3.419		3.502	2.569	2.572	2.575
0.9	2.646	3.576	6.790	3.489		3.557	2.664	2.681	2.698
1.0	2.698	3.665	7.147	3.564	4.546	3.559	2.735	2.774	2.814
1.1	2.713	3.752	7.456	3.644		3.558	2.781	2.852	2.931
1.2	2.699	3.843	7.710	3.727	5.054	3.554	2.805	2.921	3.054
1.3	2.659	3.944	7.902	3.817		3.547	2.812	2.985	3.190
1.4	2.598	4.057	8.032	3.915	5.686	3.539	2.808	3.047	3.343
1.5	2.518	4.184	8.102	4.024	6.048	3.529	2.794	3.112	3.517
1.6	2.423	4.325	8.116	4.145	6.444	3.518	2.774	3.185	3.717
1.8	2.187	4.654	8.000	4.426	7.336	3.497	2.727	3.367	4.199
2.0	1.904	5.055	7.750	4.770	8.359	3.486	2.690	3.620	4.800
2.2	1.591	5.533	7.462	5.187	9.506	3.498	2.684	3.958	5.516
2.4	1.276	6.091	7.222	5.688	10.771	3.547	2.728	4.384	6.335
2.6	0.982	6.719	7.087	6.274	12.215	3.643	2.831	4.891	7.243
2.8	0.725	7.405		6.939					
3.0	0.511	8.140		8.469					
3.2	0.341	8.914		9.308					
3.4	0.209	9.722		10.181					

Type IIA results, as in table VII. These include all corrections discussed in the text.

Table IX

	$(A_1^+)'$				T_2^+			
g	$E(0,0,0)$	$E(1,1,1)$	$\bar{E}$	E_P	$E(0,0,0)$	$E(1,1,1)$	$\bar{E}$	E_P
0.5	3.105(420)	3.109(173)	3.107	3.103				
0.55	3.213(410)	3.244(128)	3.228	3.230				
0.6	3.297(374)	3.376(110)	3.336	3.342				
0.65	3.365(342)	3.510(101)	3.437	3.441				
0.7	3.427(352)	3.649(91)	3.538	3.527	3.431(532)	3.847(153)	3.459	3.458
0.8	3.540(450)	3.949(61)	3.744	3.662	3.547(565)	3.712(140)	3.629	3.603
0.9	3.651(550)	4.289(31)	3.970	3.752	3.630(571)	3.744(26)	3.787	3.761
1.0	3.764(650)	4.674(12)	4.219	3.809	3.661(472)	4.199(5)	3.930	3.819
1.2	3.999(350)	5.588(1)	4.794	3.780	3.719(325)	4.799(0)	4.259	3.904

Type I(A&B) results for the first excited A_1^+ and the T_2^+ states with 0 and 3 units of electric flux, compared with the perturbative prediction E_P. The quantity $\bar{E}$ is the average $\frac{1}{2}(E(0,0,0)+E(1,1,1))$, and we expect $E_P - \bar{E} = O\left((E(1,1,1)-E(0,0,0))^2\right)$.

Table X

J	ε_1	R
0^+	4.1167(0)	A_1^+
2^+	6.0145(47)	E^+ , T_2^+
0^+	6.3863(0)	A_1^+
4^+	7.7355(103)	A_1^+ , E^+ , T_1^+ , T_2^+
2^+	7.822(10)	E^+ , T_2^+
0^+	7.974(0)	A_1^+
0^-	8.7867(0)	A_1^-
0^+	9.25 . . .	A_1^+
6^+	9.3273(241)	A_1^+ , A_2^+ , E^+ , T_1^+ , $2 \times T_2^+$
2^-	11.331(0)	E^- , T_2^-
0^-	12.055(2)	A_1^-
4^-	13.721(27)	A_1^- , E^- , T_1^- , T_2^-
6^-	15.988(39)	A_1^- , A_2^- , E^- , T_1^- , $2 \times T_2^-$

Low g spin assignments. $\varepsilon_1 = L \cdot E/g^{2/3}$, computed using type IIIC at $g = 1$. We list only the eight lowest even parity states and five lowest odd parity states.

Table XI

g	E_0^{++}	E^{-+}	$E^{-+} - E^{++}$	$f''(g)$	$\frac{1}{2}(E^{++} + E^{-+})$	$E^+(g)$	E^{+-}	$E^-(g)$
0.09	0.17487575	0.17487654	0.00000079	−0.0014	0.17487615	0.17494313	0.37724	0.3772703
0.1	0.18729819	0.18730241	0.00000395	−0.0158	0.18730016	0.18739695	0.40437	0.4044183
0.2	0.2890532	0.2933515	0.0043017	−0.0016	0.29120238	0.29239189	0.635790	0.6363695
0.25	0.3256065	0.3414209	0.0158144	0.0327	0.33351369	0.33590255	0.733062	0.7347050
0.3	0.3540396	0.3901446	0.0361050	0.0842	0.3720921	0.37522430	0.820595	0.8251487
0.35	0.3770573	0.4407058	0.0636485	0.1483	0.4088816	0.41104178	0.898229	0.9091703
0.4	0.3969677	0.4935331	0.0965654	0.2193	0.4452504	0.44381425	0.965727	0.9877553
0.45	0.4152398	0.5487022	0.1334624	0.2935	0.4819710	0.47386862	1.023656	1.0616055
0.5	0.4327243	0.6061322	0.1734079	0.3685	0.5194283	0.50144809	1.073428	1.1312429

The Rayleigh-Ritz results for the toy model. $f''(g)$ is defined in eq. (B.13) and $E^{\pm}$ are given in eq. (B.4).