Tables Useful for the Calculation of the Molecular Integrals IX

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In Part IX we give the numerical table for the molecular integrals in the case of homonuclear diatomic molecule including $1s$, $2s$, $2p$ atomic orbitals (AO's). For convenience, we shall explain briefly the conventions here adopted.

(1) Units. We shall use the following atomic units: lengths in units of the Bohr radius $a_0=0.5293$ A; energies in units of $e^2/a_0=27.204$ ev.

(2) Atomic orbitals. Let $\alpha_a, \beta_a, \cdots$ be the atomic orbitals with their centers at A, and $\gamma_b, \delta_b, \cdots$ be those with their centers at B. Their explicit forms are:

$$h_a(1)=(1s)_a=\sqrt{\frac{\delta_1^3}{\pi}}e^{-\delta_1\gamma_{a1}} \quad (1s \text{ orbital}),$$

$$s_a^o(1)=(2s^o)_a=c_1h_a(1)+c_2s_a(1), \quad c_2>0 \quad (\text{orthogonalized } 2s \text{ orbital}),$$

where
$$s_a(1)=(2s)_a=\sqrt{\frac{\delta_2^5}{3\pi}}r_{a1}e^{-\delta_2\gamma_{a1}} \quad (\text{Slater } 2s \text{ orbital}),$$

$$\sigma_a(1)=(2p\sigma)_a=\sqrt{\frac{\delta_2^5}{\pi}}r_{a1}\cos\theta_{a1}e^{-\delta_2\gamma_{a1}} \quad (2p\sigma \text{ orbital}),$$

$$\pi_a(1)=(2p\pi)_a=\sqrt{\frac{\delta_2^5}{\pi}}r_{a1}\sin\theta_{a1}\cos\varphi_1e^{-\delta_2\gamma_{a1}} \quad (2px \text{ orbital}),$$

$$\pi_a'(1)=(2p\pi')_a=\sqrt{\frac{\delta_2^5}{\pi}}r_{a1}\sin\theta_{a1}\sin\varphi_1e^{-\delta_2\gamma_{a1}} \quad (2py \text{ orbital}),$$

$$\pi_a^+(1)=(2p\pi^+)_a=\sqrt{\frac{\delta_2^5}{2\pi}}r_{a1}\sin\theta_{a1}e^{i\varphi_1}\cdot e^{-\delta_2\gamma_{a1}}=\frac{1}{\sqrt{2}}[\pi_a(1)+i\pi_a'(1)]$$

$$\pi_a^-(1)=(2p\pi^-)_a=\sqrt{\frac{\delta_2^5}{2\pi}}r_{a1}\sin\theta_{a1}e^{-i\varphi_1}\cdot e^{-\delta_2\gamma_{a1}}=\frac{1}{\sqrt{2}}[\pi_a(1)-i\pi_a'(1)]$$

In the above, the coordinate system is chosen as follows; the position of electron is denoted by P, $r_{a1}=\overline{\mathrm{AP}}$, $r_{b1}=\overline{\mathrm{BP}}$, $\theta_{a1}=\angle\mathrm{BAP}$, $\theta_{b1}=\angle\mathrm{ABP}$,

c_1, c_2 are the constants determined by the orthonormality conditions;

$$\int s_a^o(1)^2 d\tau_1 = 1 , \qquad \int h_a(1) s_a^o(1) d\tau_1 = 0 .$$

(3) Molecular integrals

Integrals	Notations		Definitions
Mononuclear	$J^o_{\alpha\beta}$	$\left(\alpha_a \left\| \frac{1}{r_a} \right\| \beta_a\right)$	$\int \alpha_a(1)^* \left(\frac{1}{r_{a1}}\right) \beta_a(1) d\tau_1$
	$T^o_{\alpha\beta}$	$\left(\alpha_a \left\| -\frac{1}{2} \Delta \right\| \beta_a\right)$	$\int \alpha_a(1)^* \left(-\frac{1}{2} \Delta_1\right) \beta_a(1) d\tau_1$
	$D^o_{\alpha\beta\gamma\delta}$	$(\alpha_a \gamma_a ; \beta_a \delta_a)$	$\int \alpha_a(1)^* \gamma_a(1) \left(\frac{1}{r_{12}}\right) \beta_a(2)^* \delta_a(2) d\tau_1 d\tau_2$
Overlap	$S_{\alpha\beta}$	$(\alpha_a \mid \beta_b)$	$\int \alpha_a(1)^* \beta_b(1) d\tau$
Kinetic	$T_{\alpha\beta}$	$\left(\alpha_a \left\| -\frac{1}{2} \Delta \right\| \beta_b\right)$	$\int \alpha_a(1)^* \left(-\frac{1}{2} \Delta_1\right) \beta_b(1) d\tau_1$
Nuclear Attraction	$K_{\alpha\beta}$	$\left(\alpha_a \left\| \frac{1}{r_b} \right\| \beta_a\right)$	$\int \alpha_a(1)^* \left(\frac{1}{r_{b1}}\right) \beta_a(1) d\tau_1$
Resonance	$J_{\alpha\beta}$	$\left(\alpha_b \left\| \frac{1}{r_b} \right\| \beta_a\right)$	$\int \alpha_b(1)^* \left(\frac{1}{r_{b1}}\right) \beta_a(1) d\tau_1$
Coulomb	$D_{\alpha\beta\gamma\delta}$	$(\alpha_a \gamma_a ; \beta_b \delta_b)$	$\int \alpha_a(1)^* \gamma_a(1) \left(\frac{1}{r_{12}}\right) \beta_b(2)^* \delta_b(2) d\tau_1 d\tau_2$
Exchange	$C_{\alpha\beta\gamma\delta}$	$(\alpha_a \gamma_b ; \beta_b \delta_a)$	$\int \alpha_a(1)^* \gamma_b(1) \left(\frac{1}{r_{12}}\right) \beta_b(2)^* \delta_a(2) d\tau_1 d\tau_2$
Ionic	$L_{\alpha\beta\gamma\bar{\delta}}$	$(\alpha_a \gamma_a ; \beta_a \delta_b)$	$\int \alpha_a(1)^* \gamma_a(1) \left(\frac{1}{r_{12}}\right) \beta_a(2)^* \delta_b(2) d\tau_1 d\tau_2$

(4) Parameters. As parameters we put $\alpha = \delta_1 R$, $\beta = \delta_2 R$, where R is the internuclear distance $\overline{AB}$.

In table XXVIII we tabulated the molecular integrals for 4 sets of parameters α, β.

Set	I	II	III	IV
α	14.00	13.25	14.00	17.75
β	3.00	3.25	3.50	5.25

Two differences should be mentioned of this table as compared to the table given by Kotani, Amemiya, Ishiguro and Kimura[1], namely,

(i) here we considered $(2s)^o$ AO instead of $(2s)$ AO.

(ii) the definition of θ_{b1} is different by 180°.

(5) Coefficients C_1, C_2 are found to be

Set	I	II	III	IV
C_1	−0.13673 271	−0.17427 870	−0.18021 926	−0.24051 759
C_2	1.00930 463	1.01507 294	1.01610 973	1.02851 773

Errata to Part VIII[2]

Page	Line	
157	17	$L_{\alpha\beta\gamma\bar{\delta}} = \cdots = \int \alpha_a(1)^* \beta_a(2)^* \frac{1}{r_{12}} \gamma_a(1) \delta_b(2) d\tau_1 d\tau_2$,

References

(1) M. Kotani, A. Amemiya, E. Ishiguro and T. Kimura: Table of Molecular Integrals, Maruzen Co. Ltd., (1955) page 226–230.

(2) E. Ishiguro, T. Arai, M. Sakamoto and K. Takayanagi: Natural Science Rep. Ochanomizu Univ. **6**, 157 (1955).

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Table XXVIII

		α; β	14.00; 3.00	13.25; 3.25	14.00; 3.50	17.75; 5.25
S	hh	$(h_a\|h_b)$	0.00006 68	0.00012 81	0.00006 68	0.00000 24
	hs^o	$(h_a\|s_b{}^o)$	0.06822 09	0.07115 47	0.06193 42	0.22142 23
	$h\sigma$	$(h_a\|\sigma_b)$	0.11457 13	0.11848 78	0.10327 44	0.03676 16
	s^os^o	$(s_a{}^o\|s_b{}^o)$	0.63053 16	0.58397 90	0.54022 37	0.27500 81
	$s^o\sigma$	$(s_a{}^o\|\sigma_b)$	0.49784 74	0.48731 41	0.47535 05	0.30530 76
	$\sigma\sigma$	$(\sigma_a\|\sigma_b)$	0.15931 86	0.21916 52	0.26485 62	0.30528 67
	$\pi\pi$	$(\pi_a\|\pi_b)$	0.46799 84	0.41734 78	0.37016 96	0.14127 30
J^oR	hh	$(h_a\|1/r_a\|h_a)R$	14.00000 00	13.25000 00	14.00000 00	17.75000 00
	hs^o	$(h_a\|1/r_a\|s_a{}^o)R$	−1.13943 92	−1.35065 99	−1.47179 06	−2.42521 91
	s^os^o	$(s_a{}^o\|1/r_a\|s_a{}^o)R$	1.57789 93	1.74269 56	1.88262 25	2.91665 39
	$\sigma\sigma$	$(\sigma_a\|1/r_a\|\sigma_a)R$	1.50000 00	1.62500 00	1.75000 00	2.62500 00
	$\pi\pi$	$(\pi_a\|1/r_a\|\pi_a)R$				
JR	hh	$(h_b\|1/r_b\|h_a)R$	0.00017 46	0.00033 24	0.00017 46	0.00000 65
	hs^o	$(h_b\|1/r_b\|s_a{}^o)R$	0.48066 83	0.47371 05	0.43403 86	0.19176 30
	s^oh	$(s_b{}^o\|1/r_b\|h_a)R$	0.07098 40	0.07479 63	0.06514 06	0.02343 39
	$h\sigma$	$(h_b\|1/r_b\|\sigma_a)R$	0.81620 39	0.79876 64	0.73197 66	0.32071 30
	σh	$(\sigma_b\|1/r_b\|h_a)R$	0.11907 25	0.12437 14	0.10847 72	0.03887 37
	s^os^o	$(s_b{}^o\|1/r_b\|s_a{}^o)R$	0.76141 28	0.73271 39	0.71254 56	0.45209 91
	$s^o\sigma$	$(s_b{}^o\|1/r_b\|\sigma_a)R$	0.80227 74	0.79336 72	0.79943 04	0.58579 75
	σs^o	$(\sigma_b\|1/r_b\|s_a{}^o)R$	0.54945 36	0.57087 25	0.58627 78	0.47465 51
	$\sigma\sigma$	$(\sigma_b\|1/r_b\|\sigma_a)R$	0.37340 30	0.45319 88	0.51744 47	0.57832 37
	$\pi\pi$	$(\pi_b\|1/r_b\|\pi_a)R$	0.52276 42	0.48962 53	0.45358 99	0.21264 75
KR	hh	$(h_a\|1/r_b\|h_a)R$	1.00000 00	1.00000 00	1.00000 00	1.00000 00
	hs^o	$(h_a\|1/r_b\|s_a{}^o)R$	−0.00000 04	−0.00000 07	−0.00000 03	−0.00000 00
	$h\sigma$	$(h_a\|1/r_b\|\sigma_a)R$	0.01840 29	0.02402 93	0.02340 52	0.02348 05
	s^os^o	$(s_a{}^o\|1/r_b\|s_a{}^o)R$	0.94066 04	0.95681 09	0.96912 68	0.99753 36
	$s^o\sigma$	$(s_a{}^o\|1/r_b\|\sigma_a)R$	0.37499 46	0.36905 49	0.35980 40	0.27288 46
	$\sigma\sigma$	$(\sigma_a\|1/r_b\|\sigma_a)R$	1.13544 63	1.14417 25	1.14656 59	1.10155 97
	$\pi\pi$	$(\pi_a\|1/r_b\|\pi_a)R$	0.84490 08	0.86503 94	0.88186 38	0.94572 28

		α; β	14.00; 3.00	13.25; 3.25	14.00; 3.50	17.75; 5.25
T^0R^2	hh	$(h_\alpha\|-\Delta/2\|h_\alpha)R^2$	98.00000 00	87.78125 00	98.00000 00	157.53125 00
	hs^0	$(h_\alpha\|-\Delta/2\|s_\alpha{}^0)R^2$	−15.95214 88	−17.89624 38	−20.60506 83	− 43.04763 80
	s^0s^0	$(s_\alpha{}^0\|-\Delta/2\|s_\alpha{}^0)R^2$	4.05821 31	5.38556 85	6.35189 80	16.45394 11
	$\sigma\sigma$	$(\sigma_\alpha\|-\Delta/2\|\sigma_\alpha)R^2$	4.50000 00	5.28125 00	6.12500 00	13.78125 00
	$\pi\pi$	$(\pi_\alpha\|-\Delta/2\|\pi_\alpha)R^2$				
TR^2	hh	$(h_\alpha\|-\Delta/2\|h_b)R^2$	−0.00410 17	−0.00684 10	−0.00410 17	−0.00026 58
	hs^0	$(h_\alpha\|-\Delta/2\|s_b{}^0)R^2$	0.04370 62	0.03061 26	0.00699 14	−0.08430 06
	$h\sigma$	$(h_\alpha\|-\Delta/2\|\sigma_b)R^2$	0.19886 41	0.18265 05	0.12678 51	−0.09844 70
	s^0s^0	$(s_\alpha{}^0\|-\Delta/2\|s_b{}^0)R^2$	0.56630 83	0.57012 45	0.55698 53	0.13844 42
	$s^0\sigma$	$(s_\alpha{}^0\|-\Delta/2\|\sigma_b)R^2$	1.05640 83	1.13704 35	1.19242 27	0.77635 74
	$\sigma\sigma$	$(\sigma_\alpha\|-\Delta/2\|\sigma_b)R^2$	1.52348 43	1.78832 62	1.99986 89	1.86516 64
	$\pi\pi$	$(\pi_\alpha\|-\Delta/2\|\pi_b)R^2$	1.03059 23	0.97844 67	0.90784 03	0.28587 95
D^0R	$hhhh$	$(h_\alpha h_\alpha;\ h_\alpha h_\alpha)R$	8.75000 00	8.28125 00	8.75000 00	11.09375 00
	$hhhs^0$	$(h_\alpha h_\alpha;\ h_\alpha s_\alpha{}^0)R$	−0.50235 62	−0.58893 31	−0.64066 51	−1.03834 64
	hs^0hs^0	$(h_\alpha h_\alpha;\ s_\alpha{}^0s_\alpha{}^0)R$	1.49790 95	1.62153 83	1.74605 11	2.61540 11
	$h\sigma h\sigma$	$(h_\alpha h_\alpha;\ \sigma_\alpha\sigma_\alpha)R$	1.49614 93	1.61862 57	1.74272 00	2.60687 48
	$h\pi h\pi$	$(h_\alpha h_\alpha;\ \pi_\alpha\pi_\alpha)R$				
	hhs^0s^0	$(h_\alpha s_\alpha{}^0;\ h_\alpha s_\alpha{}^0)R$	0.04662 44	0.06859 82	0.07698 36	0.16263 29
	$hs^0s^0s^0$	$(h_\alpha s_\alpha{}^0;\ s_\alpha{}^0s_\alpha{}^0)R$	−0.00745 87	−0.01349 35	−0.01557 86	−0.04192 86
	$h\sigma s^0\sigma$	$(h_\alpha s_\alpha{}^0;\ \sigma_\alpha\sigma_\alpha)R$	−0.00402 53	−0.00725 06	−0.00836 72	−0.02246 39
	$h\pi s^0\pi$	$(h_\alpha s_\alpha;\ \pi_\alpha\pi_\alpha)R$				
	$hh\sigma\sigma$	$(h_\alpha\sigma_\alpha;\ h_\alpha\sigma_\alpha)R$	0.01516 65	0.02364 36	0.02676 05	0.06114 11
	$hh\pi\pi$	$(h_\alpha\pi_\alpha;\ h_\alpha\pi_\alpha)R$				
	$hs^0\sigma\sigma$	$(h_\alpha\sigma_\alpha;\ s_\alpha{}^0\sigma_\alpha)R$	0.02465 91	0.03538 09	0.03955 80	0.08059 73
	$hs^0\pi\pi$	$(h_\alpha\pi_\alpha;\ s_\alpha{}^0\pi_\alpha)R$				
	$s^0s^0s^0s^0$	$(s_\alpha{}^0s_\alpha{}^0;\ s_\alpha{}^0s_\alpha{}^0)R$	1.07763 75	1.16087 43	1.24899 76	1.85504 47
	$\sigma s^0\sigma s^0$	$(\sigma_\alpha\sigma_\alpha;\ s_\alpha{}^0s_\alpha{}^0)R$	1.08334 84	1.16988 91	1.25919 50	1.87755 88
	$\pi s^0\pi s^0$	$(\pi_\alpha\pi_\alpha;\ s_\alpha{}^0s_\alpha{}^0)R$				
	$\sigma s^0s^0\sigma$	$(\sigma_\alpha s_\alpha{}^0;\ \sigma_\alpha s_\alpha{}^0)R$	0.23836 20	0.25583 49	0.27503 33	0.40362 85
	$\pi s^0s^0\pi$	$(\pi_\alpha s_\alpha{}^0;\ \pi_\alpha s_\alpha{}^0)R$				
	$\sigma\sigma\sigma\sigma$	$(\sigma_\alpha\sigma_\alpha;\ \sigma_\alpha\sigma_\alpha)R$	1.17421 88	1.27207 03	1.36992 19	2.05488 28
	$\pi\pi\pi\pi$	$(\pi_\alpha\pi_\alpha;\ \pi_\alpha\pi_\alpha)R$				
	$\sigma\pi\sigma\pi$	$(\sigma_\alpha\sigma_\alpha;\ \pi_\alpha\pi_\alpha)R$	1.04765 63	1.13496 09	1.22226 56	1.83339 84
	$\pi\pi'\pi\pi'$	$(\pi_\alpha\pi_\alpha;\ \pi_{\alpha'}\pi_{\alpha'})R$				

	$\pi\sigma\sigma\pi$	$(\pi_a\sigma_a;\ \pi_a\sigma_a)R$	0.06328 13	0.06855 47	0.07382 81	0.11074 22
	$\pi\pi'\pi'\pi$	$(\pi_a\pi_a';\ \pi_a\pi_a')R$				
	$++++$	$(\pi_a{}^+\pi_a{}^+;\ \pi_a{}^+\pi_a{}^+)R$	1.11093 75	1.20351 56	1.29609 38	1.94414 06
	$+--+$	$(\pi_a{}^+\pi_a{}^-;\ \pi_a{}^-\pi_a{}^+)R$	0.12656 25	0.13710 94	0.14765 63	0.22148 44
DR	$hhhh$	$(h_ah_a;\ h_bh_b)R$	1.00000 00	1.00000 00	1.00000 00	1.00000 00
	$hhhs^o$	$(h_ah_a;\ h_bs_b{}^o)R$	−0.00000 07	−0.00000 14	−0.00000 06	−0.00000 00
	$hhh\sigma$	$(h_ah_a;\ h_b\sigma_b)R$	0.01840 23	0.02402 81	0.02340 47	0.02348 04
	$hshs^o$	$(h_ah_a;\ s_b{}^os_b{}^0)R$	0.93855 04	0.95463 75	0.96740 39	0.99727 15
	$hs^oh\sigma$	$(h_ah_a;\ s_b{}^o\sigma_b)R$	0.37138 80	0.36536 27	0.35687 88	0.27244 45
	$h\sigma h\sigma$	$(h_ah_a;\ \sigma_b\sigma_b)R$	1.12928 13	1.13789 99	1.14159 95	1.10082 05
	$h\pi h\pi$	$(h_ah_a;\ \pi_b\pi_b)R$	0.84487 64	0.86501 13	0.88184 38	0.94572 09
	hhs^os^o	$(h_as_a{}^o;\ h_bs_b{}^0)R$	−0.00000 11	−0.00000 25	−0.00000 13	−0.00000 00
	$hhs^o\sigma$	$(h_as_a{}^o;\ s_b{}^o\sigma_b)R$	−0.00000 18	−0.00000 42	−0.00000 21	−0.00000 01
	$hs^os^os^o$	$(h_as_a{}^o;\ s_b{}^os_b{}^o)R$	−0.00104 93	−0.00131 92	−0.00108 95	−0.00022 71
	$hs^os^o\sigma$	$(h_as_a{}^o;\ s_b{}^o\sigma_b)R$	−0.00176 55	−0.00220 29	−0.00182 14	−0.00037 78
	$h\sigma s^o\sigma$	$(h_as_a{}^o;\ \sigma_b\sigma_b)R$	−0.00297 31	−0.00368 24	−0.00304 74	−0.00062 86
	$h\pi s^o\pi$	$(h_as_a{}^o;\ \pi_b\pi_b)R$	−0.00005 89	−0.00008 06	−0.00005 99	−0.00000 78
	$hh\sigma\sigma$	$(h_a\sigma_a;\ h_b\sigma_b)R$	0.00067 43	0.00114 77	0.00109 20	0.00110 26
	$hs^o\sigma s^o$	$(h_a\sigma_a;\ s_b{}^os_b{}^o)R$	0.01244 06	0.01759 22	0.01844 53	0.02274 79
	$hs^o\sigma\sigma$	$(h_a\sigma_a;\ s_b{}^o\sigma_b)R$	0.00678 35	0.00983 58	0.01055 62	0.01176 28
	$h\sigma\sigma\sigma$	$(h_a\sigma_a;\ \sigma_b\sigma_b)R$	0.01636 10	0.02336 75	0.02469 19	0.02900 83
	$h\pi\sigma\pi$	$(h_a\sigma_a;\ \pi_b\pi_b)R$	0.01064 37	0.01498 70	0.01555 49	0.01967 78
	$hh\pi\pi$	$(h_a\pi_a;\ h_b\pi_b)R$	0.00033 85	0.00057 69	0.00054 76	0.00055 13
	$hs^o\pi\pi$	$(h_a\pi_a;\ s_b{}^o\pi_b)R$	0.00662 78	0.00851 59	0.00814 77	0.00636 53
	$h\sigma\pi\pi$	$(h_a\pi_a;\ \sigma_b\pi_b)R$	0.00489 19	0.00612 56	0.00574 26	0.00358 96
	$s^os^os^os^o$	$(s_a{}^os_a{}^o;\ s_b{}^os_b{}^o)R$	0.82038 94	0.85159 62	0.87959 41	0.97730 61
	$\sigma s^os^os^o$	$(\sigma_as_a{}^o;\ s_b{}^os_b{}^o)R$	0.21043 12	0.22300 23	0.23381 64	0.24290 04
	$\sigma\sigma s^os^o$	$(\sigma_as_a{}^o;\ \sigma_bs_b{}^o)R$	0.03395 18	0.04965 14	0.06415 32	0.10158 44
	$\sigma\sigma\sigma s^o$	$(\sigma_a\sigma_a;\ \sigma_bs_b{}^o)R$	0.20895 99	0.23067 02	0.24944 68	0.28487 71
	$\pi s^o\pi s^o$	$(\pi_a\pi_a;\ s_b{}^os_b{}^o)R$	0.79356 53	0.82250 01	0.84744 62	0.93996 38
	$\pi\pi s^os^o$	$(\pi_as_a{}^o;\ \pi_bs_b{}^o)R$	0.11331 51	0.10988 85	0.10565 11	0.06913 78
	$\pi\pi\sigma s^o$	$(\pi_a\sigma_a;\ \pi_bs_b{}^o)R$	0.05378 60	0.05360 01	0.05265 01	0.03419 87
	$\pi\pi\sigma\sigma$	$(\pi_a\sigma_a;\ \pi_b\sigma_b)R$	0.01916 82	0.02183 83	0.02361 20	0.01949 35
	$\pi\sigma\pi\sigma$	$(\pi_a\pi_a;\ \sigma_b\sigma_b)R$	0.85341 52	0.88817 97	0.91707 25	1.00790 86

		α; β	14.00; 3.00	13.25; 3.25	14.00; 3.50	17.75; 5.25
	$\sigma s^o \sigma s^o$	$(\sigma_a \sigma_a; s_b{}^o s_b{}^o)R$	0.87969 84	0.91756 19	0.95103 56	1.05495 64
	$\pi\sigma\pi s^o$	$(\pi_a \pi_a; \sigma_b s_b{}^o)R$	0.21488 70	0.22434 53	0.23085 43	0.22407 77
	$\sigma\sigma\sigma\sigma$	$(\sigma_a \sigma_a; \sigma_b \sigma_b)R$	0.94361 21	0.99207 44	1.03375 42	1.15571 89
	$\pi\pi\pi\pi$	$(\pi_a \pi_a; \pi_b \pi_b)R$	0.78468 35	0.80950 78	0.83054 47	0.91330 28
	$\pi\pi'\pi\pi'$	$(\pi_a \pi_a; \pi_b{}' \pi_b{}')R$	0.74537 47	0.77349 06	0.79790 48	0.89961 38
	$\pi\pi\pi'\pi'$	$(\pi_a \pi_a'; \pi_b \pi_b')R$	0.01965 44	0.01800 86	0.01631 99	0.00684 45
	$++++$	$(\pi_a{}^+ \pi_a{}^+; \pi_b{}^+ \pi_b{}^+)R$	0.76502 91	0.79149 92	0.81422 47	0.90645 83
	$+--+$	$(\pi_a{}^+ \pi_a{}^-; \pi_b{}^- \pi_b{}^+)R$	0.03930 88	0.03601 72	0.03263 98	0.01368 91
CR	$hhhh$	$(h_a h_b; h_b h_a)R$	0.00000 00	0.00000 01	0.00000 00	0.00000 00
	$hhhs^o$	$(h_a h_b; h_b s_a{}^o)R$	0.00001 32	0.00002 63	0.00001 22	0.00000 01
	$hhh\sigma$	$(h_a h_b; h_b \sigma_a)R$	0.00002 24	0.00004 40	0.00002 05	0.00000 02
	$hs^o hs^o$	$(h_a h_b; s_b{}^o s_a{}^o)R$	0.00005 88	0.00011 11	0.00005 72	0.00000 14
	$hs^o h\sigma$	$(h_a h_b; s_b{}^o \sigma_a)R$	0.00005 73	0.00011 33	0.00006 08	0.00000 18
	$h\sigma h\sigma$	$(h_a h_b; \sigma_b \sigma_a)R$	0.00004 41	0.00009 85	0.00005 72	0.00000 22
	$h\pi h\pi$	$(h_a h_b; \pi_b \pi_a)R$	0.00003 80	0.00006 89	0.00003 36	0.00000 06
	$hhs^o s^o$	$(h_a s_b{}^o; h_b s_a{}^o)R$	0.00503 75	0.00559 86	0.00424 63	0.00054 92
	$hs^o s^o h$	$(h_a s_b{}^o; s_b{}^o h_a)R$	0.02069 92	0.02135 51	0.01704 19	0.00270 94
	$hhs^o\sigma$	$(h_a s_b{}^o; h_b \sigma_a)R$	0.00845 02	0.00931 00	0.00707 15	0.00091 10
	$h\sigma s^o h$	$(h_a s_b{}^o; \sigma_b h_a)R$	0.03499 32	0.03582 87	0.02861 00	0.00451 80
	$hs^o s^o s^o$	$(h_a s_b{}^o; s_b{}^o s_a{}^o)R$	0.05368 78	0.05449 09	0.04624 25	0.01071 73
	$hs^o s^o\sigma$	$(h_a s_b{}^o; s_b{}^o \sigma_a)R$	0.03940 10	0.04313 71	0.03863 68	0.01137 49
	$h\sigma s^o s^o$	$(h_a s_b{}^o; \sigma_b s_a{}^o)R$	0.05694 89	0.05951 19	0.05229 85	0.01397 64
	$h\sigma s^o\sigma$	$(h_a s_b{}^o; \sigma_b \sigma_a)R$	0.02764 53	0.03516 77	0.03484 67	0.01399 72
	$h\pi s^o\pi$	$(h_a s_b{}^o; \pi_b \pi_a)R$	0.03609 56	0.03540 04	0.02861 19	0.00487 54
	$hh\sigma\sigma$	$(h_a s_b; h_b \sigma_a)R$	0.01417 50	0.01548 17	0.01177 64	0.00151 12
	$h\sigma\sigma h$	$(h_a \sigma_b; \sigma_b h_a)R$	0.05916 11	0.06011 59	0.04803 32	0.00753 39
	$hs^o\sigma s^o$	$(h_a \sigma_b; s_b{}^o s_a{}^o)R$	0.09013 92	0.09070 76	0.07708 31	0.01778 82
	$hs^o\sigma\sigma$	$(h_a \sigma_b; s_b{}^o \sigma_a)R$	0.06608 53	0.07173 23	0.06435 14	0.01887 50
	$h\sigma\sigma s^o$	$(h_a \sigma_b; \sigma_b s_a{}^o)R$	0.09564 98	0.09911 08	0.08720 92	0.02320 04
	$h\sigma\sigma\sigma$	$(h_a \sigma_b; \sigma_b \sigma_a)R$	0.04635 44	0.05848 24	0.05804 37	0.02322 85
	$h\pi\sigma\pi$	$(h_a \sigma_b; \pi_b \pi_a)R$	0.06059 21	0.05891 72	0.04768 56	0.00809 12
	$hh\pi\pi$	$(h_a \pi_b; h_b \pi_a)R$	0.00000 96	0.00001 44	0.00000 88	0.00000 05
	$h\pi\pi h$	$(h_a \pi_b; \pi_b h_a)R$	0.00014 68	0.00016 83	0.00012 07	0.00001 21

CR	$hs^o\pi\pi$	$(h_a\pi_b;\ s_b{}^o\pi_a)R$	0.00148 36	0.00169 62	0.00133 78	0.00021 84
	$h\pi\pi s^o$	$(h_a\pi_b;\ \pi_b s_a{}^o)R$	0.00096 74	0.00110 46	0.00084 85	0.00012 13
	$h\sigma\pi\pi$	$(h_a\pi_b;\ \sigma_b\pi_a)R$	0.00200 12	0.00229 94	0.00184 73	0.00032 24
	$h\pi\pi\sigma$	$(h_a\pi_b;\ \pi_b\sigma_a)R$	0.00072 73	0.00088 80	0.00070 38	0.00011 81
	$s^os^os^os^o$	$(s_a{}^os_b{}^o;\ s_b{}^os_a{}^o)R$	0.41542 95	0.38256 26	0.35100 12	0.12983 57
	$\sigma s^os^os^o$	$(\sigma_a s_b{}^o;\ s_b{}^os_a{}^o)R$	0.36179 82	0.35160 85	0.33925 66	0.15509 88
	$\sigma\sigma s^os^o$	$(\sigma_a s_b{}^o;\ \sigma_b s_a{}^o)R$	0.28753 17	0.30250 31	0.31182 84	0.18328 21
	$\sigma s^o\sigma s^o$	$(\sigma_a\sigma_b;\ s_b{}^os_a{}^o)R$	0.19398 67	0.23048 55	0.25497 07	0.17579 11
	$\sigma s^os^o\sigma$	$(\sigma_a s_b{}^o;\ s_b{}^o\sigma_a)R$	0.36344 51	0.36360 93	0.36196 56	0.19210 05
	$\sigma\sigma\sigma s^o$	$(\sigma_a\sigma_b;\ \sigma_b s_a{}^o)R$	0.19964 15	0.24105 96	0.27307 75	0.21726 43
	$\sigma\sigma\sigma\sigma$	$(\sigma_a\sigma_b;\ \sigma_b\sigma_a)R$	0.18422 78	0.22733 31	0.26575 85	0.26005 69
	$\pi\pi s^os^o$	$(\pi_a s_b{}^o;\ \pi_b s_a{}^o)R$	0.06773 98	0.06016 78	0.05224 98	0.01334 27
	$\pi s^o\pi s^o$	$(\pi_a\sigma_b;\ s_b{}^os_a{}^o)R$	0.29473 15	0.26035 11	0.22743 49	0.06070 33
	$\pi s^os^o\pi$	$(\pi_a s_b{}^o;\ s_b{}^o\pi_a)R$	0.07188 87	0.06426 89	0.05607 41	0.01470 58
	$\pi\pi\sigma\sigma$	$(\pi_a\sigma_b;\ \pi_b\sigma_a)R$	0.05047 52	0.04982 39	0.04752 02	0.01785 71
	$\pi\sigma\pi\sigma$	$(\pi_a\pi_b;\ \sigma_b\sigma_a)R$	0.13268 69	0.15057 00	0.15811 72	0.07874 76
	$\pi\sigma\sigma\pi$	$(\pi_a\sigma_b;\ \sigma_b\pi_a)R$	0.08629 57	0.08149 09	0.07502 76	0.02484 38
	$\pi\pi\sigma s^o$	$(\pi_a\pi_b;\ \pi_b s_{ab})R$	0.06225 20	0.05759 13	0.05197 35	0.01568 22
	$\pi\sigma\pi s^o$	$(\pi_a\pi_b;\ \sigma_b s_a{}^o)R$	0.25398 69	0.23638 73	0.21682 30	0.07129 12
	$\pi\sigma s^o\pi$	$(\pi_a s_b{}^o;\ \sigma_b\pi_a)R$	0.07422 54	0.06879 51	0.06207 67	0.01874 55
	$\pi\pi\pi\pi$	$(\pi_a\pi_b;\ \pi_b\pi_a)R$	0.22521 43	0.19090 21	0.15911 48	0.03106 82
	$\pi\pi\pi'\pi'$	$(\pi_a\pi_b';\ \pi_b\pi_a')R$	0.01193 95	0.01008 92	0.00838 20	0.00159 61
	$\pi\pi'\pi\pi'$	$(\pi_a\pi_b;\ \pi_b'\pi_a')R$	0.20133 53	0.17072 37	0.14235 09	0.02787 60
	$++++$	$(\pi_a{}^+\pi_b{}^+;\ \pi_b{}^+\pi_a{}^+)R$	0.21327 48	0.18081 29	0.15073 29	0.02947 21
	$+--+$	$(\pi_a{}^+\pi_b{}^-;\ \pi_b{}^-\pi_a{}^+)R$	0.02387 91	0.02017 84	0.01676 39	0.00319 23
LR	$hhh\bar{h}$	$(h_ah_a;\ h_as_b)R$	0.00016 47	0.00031 25	0.00016 47	0.00000 64
	$hhh\bar{s}$	$(h_ah_a;\ h_as_b{}^o)R$	0.39120 90	0.38569 70	0.35365 15	0.15701 77
	$hs^oh\bar{h}$	$(h_ah_a;\ s_a{}^oh_b)R$	0.07098 50	0.07479 87	0.06514 18	0.02343 39
	$hhh\bar{\sigma}$	$(h_ah_a;\ h_a\sigma_b)R$	0.66292 69	0.64884 83	0.59516 56	0.26225 95
	$h\sigma h\bar{h}$	$(h_ah_a;\ \sigma_ah_b)R$	0.11907 21	0.12437 04	0.10847 67	0.03887 37
	$hs^oh\bar{s}^o$	$(h_ah_a;\ s_a{}^os_b{}^o)R$	0.77105 49	0.74463 11	0.72377 16	0.45841 51
	$hs^oh\bar{\sigma}$	$(h_ah_a;\ s_a{}^o\sigma_b)R$	0.81881 67	0.81369 31	0.81855 86	0.59643 13
	$h\sigma h\bar{s}^o$	$(h_ah_a;\ \sigma_as_b{}^o)R$	0.54911 56	0.57035 32	0.58575 82	0.47423 20
	$h\sigma h\bar{\sigma}$	$(h_ah_x;\ \sigma_a\sigma_b)R$	0.37282 95	0.45232 26	0.51656 77	0.57761 45
	$h\pi h\bar{\pi}$	$(h_ah_x;\ \pi_a\pi_b)R$	0.52247 26	0.48922 90	0.45323 37	0.21247 93

		$\alpha;\ \beta$	14.00; 3.00	13.25; 3.25	14.00; 3.50	17.75; 5.25
LR	$hhs^o\bar{h}$	$(h_\alpha s_\alpha{}^o;\ h_\alpha h_b)R$	−0.00000 23	−0.00000 57	−0.00000 29	0.00000 01
	$hhs\bar{s}^o$	$(h_\alpha s_\alpha{}^o;\ h_\alpha s_b{}^o)R$	−0.01511 28	−0.01827 67	−0.01718 63	−0.00945 74
	$hs^os^o\bar{h}$	$(h_\alpha s_\alpha{}^o;\ s_\alpha{}^o h_b)R$	−0.00000 10	−0.00000 23	−0.00000 12	−0.00000 00
	$hhs^o\bar{\sigma}$	$(h_\alpha s_\alpha{}^o;\ h_\alpha\sigma_b)R$	−0.02580 05	−0.03100 93	−0.02914 66	−0.01587 70
	$h\sigma s^o\bar{h}$	$(h_\alpha s_\alpha{}^o;\ \sigma_\alpha h_b)R$	−0.00000 19	−0.00000 45	−0.00000 24	−0.00000 01
	$hs^os^o\bar{s}^o$	$(h_\alpha s_\alpha{}^o;\ s_\alpha{}^o s_b{}^o)R$	0.00011 65	0.00024 93	0.00023 89	0.00018 27
	$hs^os^o\bar{\sigma}$	$(h_\alpha s_\alpha{}^o;\ s_\alpha{}^o\sigma_b)R$	0.00025 18	0.00050 35	0.00047 45	0.00033 41
	$h\sigma s^o\bar{s}^o$	$(h_\alpha s_\alpha{}^o;\ \sigma_\alpha s_b{}^o)R$	−0.00047 73	−0.00081 48	−0.00083 16	−0.00077 11
	$h\sigma s^o\bar{\sigma}$	$(h_\alpha s_\alpha{}^o;\ \sigma_\alpha\sigma_b)R$	−0.00078 87	−0.00134 04	−0.00137 42	−0.00128 02
	$h\pi s^o\bar{\pi}$	$(h_\alpha s_\alpha{}^o;\ \pi_\alpha\pi_b)R$	−0.00041 70	−0.00062 99	−0.00057 66	−0.00030 84
	$hh\sigma\bar{h}$	$(h_\alpha\sigma_\alpha;\ h_\alpha h_b)R$	0.00000 46	0.00001 11	0.00000 60	0.00000 03
	$hh\sigma\bar{s}^o$	$(h_\alpha\sigma_\alpha;\ h_\alpha s_b{}^o)R$	0.00164 52	0.00245 49	0.00245 74	0.00197 33
	$hs^o\sigma\bar{h}$	$(h_\alpha\sigma_\alpha;\ s_\alpha{}^o h_b)R$	0.00135 85	0.00188 72	0.00160 37	0.00058 38
	$hh\sigma\bar{\sigma}$	$(h_\alpha\sigma_\alpha;\ h_\alpha\sigma_b)R$	0.00274 39	0.00406 65	0.00408 36	0.00328 02
	$h\sigma\sigma\bar{h}$	$(h_\alpha\sigma_\alpha;\ \sigma_\alpha h_b)R$	0.00227 86	0.00313 82	0.00267 02	0.00096 79
	$hs^o\sigma\bar{s}^o$	$(h_\alpha\sigma_\alpha;\ s_\alpha{}^o s_b{}^o)R$	0.00744 39	0.01048 72	0.01105 80	0.01143 74
	$hs^o\sigma\bar{\sigma}$	$(h_\alpha\sigma_\alpha;\ s_\alpha{}^o\sigma_b)R$	0.00722 14	0.01099 64	0.01238 60	0.01565 43
	$h\sigma\sigma\bar{s}^o$	$(h_\alpha\sigma_\alpha;\ \sigma_\alpha s_b{}^o)R$	0.01545 57	0.02083 85	0.02123 03	0.01922 60
	$h\sigma\sigma\bar{\sigma}$	$(h_\alpha\sigma_\alpha;\ \sigma_\alpha\sigma_b)R$	0.01873 87	0.02596 31	0.02719 12	0.02734 05
	$h\pi\sigma\bar{\pi}$	$(h_\alpha\sigma_\alpha;\ \pi_\alpha\pi_b)R$	0.00458 07	0.00609 05	0.00597 05	0.00419 92
	$hh\pi\bar{\pi}$	$(h_\alpha\pi_\alpha;\ h_\alpha\pi_b)R$	0.00143 14	0.00189 12	0.00169 90	0.00078 86
	$h\pi\pi\bar{h}$	$(h_\alpha\pi_\alpha;\ \pi_\alpha h_b)R$	0.00005 65	0.00009 07	0.00006 89	0.00001 57
	$hs^o\pi\bar{\pi}$	$(h_\alpha\pi_\alpha;\ s_\alpha{}^o\pi_b)R$	0.00707 64	0.00892 62	0.00844 25	0.00497 94
	$h\pi\pi\bar{s}^o$	$(h_\alpha\pi_\alpha;\ \pi_\alpha s_b{}^o)R$	0.01182 11	0.01527 56	0.01489 42	0.01039 12
	$h\sigma\pi\bar{\pi}$	$(h_\alpha\pi_\alpha;\ \sigma_\alpha\pi_b)R$	0.00458 07	0.00609 05	0.00597 05	0.00419 92
	$h\pi\pi\bar{\sigma}$	$(h_\alpha\pi_\alpha;\ \pi_\alpha\sigma_b)R$	0.01633 21	0.02129 04	0.02109 92	0.01561 46
	$shs\bar{h}$	$(s_\alpha{}^o s_\alpha{}^o;\ h_\alpha h_b)R$	0.00008 49	0.00017 11	0.00009 37	0.00000 43
	$s^ohs^o\bar{s}^o$	$(s_\alpha{}^o s_\alpha{}^o;\ h_\alpha s_b{}^o)R$	0.09909 93	0.11060 31	0.10342 57	0.05409 85
	$s^os^os^o\bar{h}$	$(s_\alpha{}^o s_\alpha{}^o;\ s_\alpha{}^o h_b)R$	0.06537 96	0.06997 85	0.06197 85	0.02328 34
	$s^ohs^o\bar{\sigma}$	$(s_\alpha{}^o s_\alpha;\ h_\alpha\sigma_b)R$	0.16659 09	0.18444 78	0.17270 04	0.08993 31
	$s^o\sigma s^o\bar{h}$	$(s_\alpha{}^o s_\alpha{}^o;\ \sigma_\alpha h_b)R$	0.10972 76	0.11642 21	0.10325 58	0.03862 72
	$s^os^os^o\bar{s}^o$	$(s_\alpha{}^o s_\alpha{}^o;\ s_\alpha{}^o s_b{}^o)R$	0.62126 11	0.61155 88	0.60014 14	0.40416 18
	$s^os^os^o\bar{\sigma}$	$(s_\alpha{}^o s_\alpha{}^o;\ s_\alpha{}^o\sigma_b)R$	0.59887 43	0.61684 12	0.63262 49	0.51047 77
	$s^o\sigma s^o\bar{s}^o$	$(s_\alpha{}^o s_\alpha{}^o;\ \sigma_\alpha s_b{}^o)R$	0.46009 45	0.48076 76	0.49802 87	0.42459 09
	$s^o\sigma s^o\bar{\sigma}$	$(s_\alpha{}^o s_\alpha{}^o;\ \sigma_\alpha\sigma_b)R$	0.25235 89	0.32563 81	0.38864 58	0.49877 64

LR	$s^o\pi s^o\bar{\pi}$	$(s_a{}^o{}_a s^o;\ \pi_a\pi_b)R$	0.43953 60	0.41561 68	0.38898 81	0.19208 82
	$\sigma h\sigma\bar{h}$	$(\sigma_a\sigma_a;\ h_a h_b)R$	0.00009 71	0.00019 62	0.00010 77	0.00000 49
	$\sigma h\sigma\bar{s}^o$	$(\sigma_a\sigma_a;\ h_a s_b{}^o)R$	0.10062 96	0.11291 92	0.10571 35	0.05586 45
	$\sigma s^o\sigma\bar{h}$	$(\sigma_a\sigma_a;\ s_a{}^o h_b)R$	0.07813 24	0.08295 07	0.07293 53	0.02587 86
	$\sigma h\sigma\bar{\sigma}$	$(\sigma_a\sigma_a;\ h_a\sigma_b)R$	0.16920 16	0.18835 68	0.17656 12	0.09288 59
	$\sigma\sigma\sigma\bar{h}$	$(\sigma_a\sigma_a;\ \sigma_a h_b)R$	0.13119 61	0.13808 69	0.12156 40	0.04293 45
	$\sigma s^o\sigma\bar{s}^o$	$(\sigma_a\sigma_a;\ s_a{}^o s_b{}^o)R$	0.64003 05	0.63335 69	0.62392 97	0.42825 96
	$\sigma s^o\sigma\bar{\sigma}$	$(\sigma_a\sigma_a;\ s_a{}^o\sigma_b)R$	0.60638 93	0.63167 89	0.65253 56	0.54248 50
	$\sigma\sigma\sigma\bar{s}^o$	$(\sigma_a\sigma_a;\ \sigma_a s_b{}^o)R$	0.49968 76	0.52346 85	0.54333 66	0.46565 05
	$\sigma\sigma\sigma\bar{\sigma}$	$(\sigma_a\sigma_a;\ \sigma_a\sigma_b)R$	0.27508 36	0.35847 15	0.42942 13	0.55370 71
	$\sigma\pi\sigma\bar{\pi}$	$(\sigma_a\sigma_a;\ \pi_a\pi_b)R$	0.44185 97	0.41975 23	0.39396 06	0.19711 73
	$\pi h\pi\bar{h}$	$(\pi_a\pi_a;\ h_a h_b)R$	0.00008 01	0.00016 19	0.00008 86	0.00000 40
	$\pi h\pi\bar{s}^o$	$(\pi_a\pi_a;\ h_a s_b{}^o)R$	0.10029 02	0.11233 47	0.10508 94	0.05520 70
	$\pi s^o\pi\bar{h}$	$(\pi_a\pi_a;\ s_a{}^o h_b)R$	0.05915 71	0.06370 44	0.05664 87	0.02199 81
	$\pi h\pi\bar{\sigma}$	$(\pi_a\pi_a;\ h_a\sigma_b)R$	0.16856 01	0.18729 26	0.17544 18	0.09176 26
	$\pi\sigma\pi\bar{h}$	$(\pi_a\pi_a;\ \sigma_a h_b)R$	0.09924 98	0.10593 88	0.09434 67	0.03649 37
	$\pi s^o\pi\bar{s}^o$	$(\pi_a\pi_a;\ s_a{}^o s_b{}^o)R$	0.61604 69	0.60667 02	0.59420 59	0.39668 77
	$\pi s^o\pi\bar{\sigma}$	$(\pi_a\pi_a;\ s_a{}^o\sigma_b)R$	0.60127 30	0.61838 19	0.63169 14	0.50175 25
	$\pi\sigma\pi\bar{s}^o$	$(\pi_a\pi_a;\ \sigma_a s_b{}^o)R$	0.44255 64	0.46296 48	0.47907 89	0.40760 70
	$\pi\sigma\pi\bar{\sigma}$	$(\pi_a\pi_a;\ \sigma_a\sigma_b)R$	0.24399 55	0.31414 27	0.37357 46	0.47690 47
	$\pi\pi\pi\bar{\pi}$	$(\pi_a\pi_a;\ \pi_a\pi_b)R$	0.46133 58	0.43569 12	0.40671 17	0.19809 85
	$\pi\pi'\pi\bar{\pi}'$	$(\pi_a\pi_a;\ \pi_a\pi_b')R$	0.41964 29	0.39727 73	0.37175 11	0.18397 35
	$\pi\pi\pi'\bar{\pi}'$	$(\pi_a\pi_a';\ \pi_a\pi_b')R$	0.02084 64	0.01920 69	0.01748 03	0.00706 25
	$s^o h\sigma\bar{h}$	$(s_a{}^o\sigma_a;\ h_a h_b)R$	0.00002 67	0.00005 38	0.00002 99	0.00000 14
	$s^o h\sigma\bar{s}^o$	$(s_a{}^o\sigma_a;\ h_a s_b{}^o)R$	0.00331 18	0.00465 32	0.00465 04	0.00355 84
	$s^o s^o\sigma\bar{h}$	$(s_a{}^o\sigma_a;\ s_a{}^o h_b)R$	0.02554 91	0.02656 36	0.02287 07	0.00663 49
	$s^o h\sigma\bar{\sigma}$	$(s_a{}^o\sigma_a;\ h_a\sigma_b)R$	0.00537 32	0.00749 83	0.00754 86	0.00585 00
	$s^o\sigma\sigma\bar{h}$	$(s_a{}^o\sigma_a;\ \sigma_a h_b)R$	0.04292 44	0.04425 09	0.03813 73	0.01100 59
	$s^o s^o\sigma\bar{s}^o$	$(s_a{}^o\sigma_a;\ s_a{}^o s_b{}^o)R$	0.10053 35	0.10488 44	0.10834 14	0.08868 40
	$s^o s^o\sigma\bar{\sigma}$	$(s_a{}^o\sigma_a;\ s_a{}^o\sigma_b)R$	0.06214 11	0.07891 64	0.09329 97	0.11172 80
	$s^o\sigma\sigma\bar{s}^o$	$(s_a{}^o\sigma_a;\ \sigma_a s_b{}^o R$	0.17433 93	0.17630 11	0.17792 92	0.13468 02
	$s^o\sigma\sigma\bar{\sigma}$	$(s_a{}^o\sigma_a;\ \sigma_a\sigma_b)R$	0.14394 35	0.16118 42	0.17560 03	0.17403 09
	$s^o\pi\sigma\bar{\pi}$	$(s_a{}^o\sigma_a;\ \pi_a\pi_b)R$	0.07112 60	0.06979 43	0.06732 74	0.03686 80
	$s^o h\pi\bar{\pi}$	$(s_a{}^o\pi_a;\ h_a\pi_b)R$	0.00291 71	0.00363 40	0.00325 41	0.00143 22
	$s^o\pi\pi\bar{h}$	$(s_a{}^o\pi_a;\ \pi_a h_b)R$	0.00096 35	0.00114 38	0.00089 41	0.00017 28

	$\alpha;\ \beta$	14.00; 3.00	13.25; 3.25	14.00; 3.50	17.75; 5.25
$s^0s^0\pi\bar{\pi}$	$(s_a{}^0\pi_a;\ s_a{}^0\pi_b)R$	0.09711 41	0.09150 11	0.08511 31	0.03967 14
$s^0\pi\pi\bar{s}^0$	$(s_a{}^0\pi_a;\ \pi_a s_b{}^0)R$	0.11852 84	0.11438 66	0.10895 54	0.05937 09
$s^0\sigma\pi\bar{\pi}$	$(s_a{}^0\pi_a;\ \sigma_a\pi_b)R$	0.07112 60	0.06979 43	0.06732 74	0.03686 80
$s^0\pi\pi\bar{\sigma}$	$(s_a{}^0\pi_a;\ \pi_a\sigma_b)R$	0.13704 86	0.13649 73	0.13416 22	0.08284 69
$\sigma h\pi\bar{\pi}$	$(\sigma_a\pi_a;\ h_a\pi_b)R$	0.00037 30	0.00054 92	0.00050 71	0.00027 92
$\sigma\pi\pi\bar{h}$	$(\sigma_a\pi_a;\ \pi_a h_b)R$	0.00069 80	0.00080 74	0.00062 48	0.00010 32
$\sigma s^0\pi\bar{\pi}$	$(\sigma_a\pi_a;\ s_a{}^0\pi_b)R$	0.03110 56	0.03049 11	0.02924 46	0.01526 94
$\sigma\pi\pi\bar{s}^0$	$(\sigma_a\pi_a;\ \pi_a s_a{}^0)R$	0.02432 81	0.02494 95	0.02503 12	0.01714 61
$\sigma\sigma\pi\bar{\pi}$	$(\sigma_a\pi_a;\ \sigma_a\pi_b)R$	0.04306 32	0.04168 18	0.03968 97	0.02020 63
$\sigma\pi\pi\sigma$	$(\sigma_a\pi_a;\ \pi_a\sigma_b)R$	0.01881 61	0.02205 18	0.02443 39	0.02264 36
$++++$	$(\pi_a{}^+\pi_a{}^+;\ \pi_a{}^+\pi_b{}^+)R$	0.44048 94	0.41648 43	0.38923 14	0.19103 60
$+--+$	$(\pi_a{}^+\pi_a{}^-;\ \pi_a{}^-\pi_b{}^+)R$	0.04169 29	0.03841 39	0.03496 06	0.01412 50