The masses of baryons and mesons by a cold genesis theory

Arghirescu Marius

Abstract

The masses of baryons and mesons in the author's cold genesis theory of fields and particles are presented in comparative tables.

Table 1. *Elementary particles: (theoretic mass-CGT)/(experimentally determined mass).*

Basic quarks: $m_1 = (z_2 - m_e^*) = 135.2\ m_e$,

Derived quarks: $p^+ (n^-) = m_1 (m_2) + 2z_\pi$;
($n^- = p^+ + e^- + \sigma_e \rightarrow p^+ + e^- + \bar{\nu}_e$);

Mesons: $(q - \bar{q})$

$\mu^\pm = 2z_1 + e^\pm = 205\ m_e$; / $\mu^+ = 206.7\ m_e$;

$(z_1 = 3z^0\ ;\ z_2 = 4z^0\ ;\ z_\pi = 7z^0)$

$\pi^o = m_1 + \bar{m}_1 = 270.4 m_e$; / $\pi^0 = 264.2\ m_e$

$\pi^+ = m_1 + \bar{m}_2 = 273\ m_e$; / $\pi^+ = 273.2\ m_e$

$\pi^\pm \rightarrow \mu^\pm + \nu_{\mu\,(2z_0)}$

$K^+ = m_1 + \bar{\lambda} = 987\ m_e$; / $K^+ = 966.3\ m_e$

$K^o = m_2 + \bar{\lambda} = 989.6\ m_e$; / $K^o = 974.5\ m_e$

$\eta^o = m_2 + \bar{s} = 1125.6\ m_e$; / $\eta^0 = 1073\ m_e$

$\phi^0 = \lambda + \bar{v} = 1975.6\ m_e$; / $\phi^0 = 1995\ m_e$

$\theta^- = v + s + \lambda = 2963.4\ m_e$;
/exp. $\theta \approx 2978 \pm 6 m_e$

$m_2^- = m_1^+ + e^- + \sigma_e\ (e^{+*} + e^{-*}) = 137{,}8\ m_e; \rightarrow m_1 + e + \bar{\nu}_e$;

p; n) $\approx 611.2 m_e$; $613.8 m_e$; $\lambda^\pm = p^+(n^-) + z_\pi$; $\lambda^- = 851.8\ m_e$

$s^\pm = \lambda^\pm + z_2$; $s^- = 987.8 m_e$; $v^\pm = \lambda^\pm + 2z_2$; $v^- = 1123.8\ m_e$

Baryons: $(q\text{-}q\text{-}q)$; $(q^+ \equiv q(+^2/_3 e)\ ;\ q^- \equiv q(-^1/_3 e))$

$-p_r = 2p + n = 1836.2 m_e$; $n_e = 2n + p = 1838.8 m_e$;

/ exp. : p_r^+, $= 1836.1\ m_e$; $n_e = 1838.7 m_e$;

$-\Lambda^o = s^- + n + p = 2212.8\ m_e$; / $\Lambda^0 = 2182.7\ m_e$

$-\Delta^{(++;+;0;-)} = s^\pm + \lambda^\pm + p^+(n^-) = 2445.6$; $2453.4\ m_e$;

/exp: $\Delta^{\pm;0} = 2411 \pm 4\ m_e$

$-\Sigma^+ = v^- + 2p = 2346.2 m_e$; $\Sigma^- = v^- + 2n = 2351.4 m_e$;

/exp.: $\Sigma^+ = 2327\ m_e$; $\Sigma^- = 2342.6\ m_e$

$-\Sigma^o = v^- + n + p = 2348.8\ m_e$ / exp. $\Sigma^0 = 2333\ m_e$;

$-\Xi^o = 2s^- + p = 2586.8\ m_e$; $\Xi^- = 2s^- + n = 2589.4\ m_e$;

/exp.: $\Xi^0 = 2572$; $\Xi^- = 2587.7\ m_e$;

$-\Omega^- = 3v^- = 3371.4\ m_e$; predict.: $\Omega^{++} = 3v^+ = 3363.6\ m_e$

/ exp.: $\Omega^- = 3273\ m_e$; $N_0^{3*} \approx 3366\ m_e$;

The masses of some "resonance" particles (*) may result also in the variant of "cold" forming, in the form:

$\Delta^{o*} = 2v^- + p = 2858.8\ m_e$; $\Delta^{-*} = 2v^- + n = 2861.4\ m_e$; (known mass of baryon "resonance": 2850 m_e),
and: $\Xi^{-*} = 3s^- = 2963.4\ m_e$; (known mass of baryon "resonance": 3004 m_e).

Table 2: Compound heavy quarks (theoretical masses)

q^c (compound)	q_2	q_2^* (CGT)	q_3	q_3'	q_3^* (CGT)	$q_3'^*$ (CGT)	q_4 (CGT)	q_5= (t;h)
q_1 = (s ; v)	$c^\bullet(s\ \bar{s}\cdot v\text{-}z_0)$	$c^*(s\cdot\ \bar{s}\cdot v)$	$b^\bullet(c^\bullet\ \bar{c}^\bullet\cdot c\text{-}z_2)$	$b(c\ \bar{c}\cdot c\text{-}z_3)$	$b^\bullet(c^\bullet\ \bar{c}^\bullet\cdot c)$	$b^c(c^*\ \bar{c}^*\cdot c^*)$	f(b $\bar{b}$b)	t(7x5)b
$q_2' = q^s$	$c(v\ \bar{v}v\text{-}z_0)^s$	$c^*(v\cdot\ \bar{v}\cdot v)$	$b^\wedge(c\ \bar{c}\cdot c^\bullet\text{-}\ z_2)$		$b^\wedge(c\ \bar{c}\cdot c^\bullet)$	$b^{c'}(c^*\ \bar{c}^*\cdot c^*)$	$f(b^\bullet\ \bar{b}^\bullet b^\bullet)$	$t(7x5)b^\bullet$
$^\wedge$ - new	$c^\wedge(v\ \bar{v}s\text{-}z_0)$	$c^\wedge(v\cdot\ \bar{v}\cdot s)$	$b^\wedge(c^\bullet\ \bar{c}^\bullet c^\bullet\text{-}z_2)$		$b^\wedge(c^\bullet\ \bar{c}^\bullet c^\bullet)$	$b^c(c^*\ \bar{c}^*\cdot c^\wedge)$	f(b $\bar{b}$b$^\bullet$)	$t(7x5)b^*$
	$c^\wedge(s\ \bar{s}\cdot s\text{-}z_0)$	$c^\wedge(s\cdot\ \bar{s}\cdot s)$			$b(c\ \bar{c}\cdot c)$	$b^{c'}(c^\wedge\ \bar{c}^\wedge\cdot c^*)$	$f(b^\bullet\ \bar{b}^\bullet b)$	h(7x5)c
m(GeV/c^2)	1.557 (SM) 1.7 1.631 1.483	1.574 1.718^+ $(1.722)^-$ 1.648 1.5	4.744 (SM) 4.887 4.601	5 ($b = b^s$)	4.814 4.957 4.671 5.1	4.722 5.154;5.166 4.648;5.084 5.014; 4.718	15 14.232 14.744 14.488 14.774	175 166 180.4 177.9 59.5
z_k(emitted)	$\delta_1 = z_0$		$\delta_2 = z_2$	$\delta_2' = z_3$			$\delta_3(z_4;\ z_5)$	?

Annex 1: Table 3: *The theoretic masses of cold baryons and of de-excited ("hot" formed) baryons,* J^P ½ *, (CGT)*

Baryons experimental mass (GeV), [16] (rest mass); J^P ½	**Theor. mass**,(Souza) u; d (0.31GeV); s(0.5); c (1.7); b (5GeV)	**Theoretic mass**, (cold baryon,CGT)* p^*;n^*(~0.312); λ^*(0.435); s^*(~0.5); v^{*-} (0.574); c^{*+}(1.718); $b^{*\pm}$(5.166); (5.154)	**Ground st./De-excited bar.** ();()^d(theor.: $c^{\pm}$(~1.7); $b^{\pm}$(~5.0) +predicted baryons( )^p;(GeV)
N (0.938÷0.939) ; (udd)	~0.939	~0.939; (ppn); (pnn)	(^{r})= recently dis.; ()'-excited st.
$-\Delta^{(++;+;0;-)}$ (1.232)	1.24 (n+m+k = 1)	~1.25; $(s^{\pm} + \lambda^{\pm} + p^+(n^-))^*$	$(1.25) - z^0 = (1.233)^d$
$-\Lambda^0$ (1.116) ; Λ^{0*}(~1.6) (uds)	1.12 (n+m+k = 0)	~1.13 (n + p + s)*; 1.583 (v+2s)*	$-(1.13)-z^0$=1.113; 1.583(v+2s)′
$-\Sigma^+$; Σ^- ; Σ^0 (1.189; 1.192; 1.197) (uus; uds ; dds)	1.12 (n+m+k = 0)	~1.199 ; ~1.2; (v+2p)*; (v+p+n)*; (v+2n)*	-(1.199) ; (1.2) -discrepancy at CGT: 0.25%
- $\Xi^-_{res.}$ (1.535) (dss)	1.5 (n+m+k = 0)	1.514 (v + s + λ)* ; (s s s)* = 1.51	- (1.51)
$-\Omega^-$ (1.673) (sss);	1.5 (n+m+k = 0) (sss)	1.722 (3v)*; 1.653(2v+s)*; (3v)*=1.722	$-(3v-z^0)^d$=1.7; (2v+s)=1.653
$-\Lambda_c^+$ (2.286) (udc) $-D_{s0}$ (2317)^r [24]	2.32 ; (n+m+k = 0)	2.343 (pnc)* = (pnc*) ; ($m_c^* = 3m_v^*$)	-(2.325)′ ($\approx m(D_{s0})$; (pnc)′ - z^0 = (2.308)^d
Λ_c(2627)	2.63 (n=1; m+k = 0)	2.653 (λsc)*	(λsc) = 2.635; -discr. 0.3 %
$-\Lambda_b^+$ (5.619)(udb) ; Λ_b^0 (6.071)^r [27]	5.62 ; (n+m+k = 0)	5.791(pnb)*;(nnb)*; 6.228(svb$^+$)*	(5.625); -dis. 0.1%; (6.074)
- Σ_c^{++}(2.454)(uuc); -Σ_c^+(2.4529)(udc)	2.63 (n=1; m+k = 0)	2.465 (pλ$^+$c)* ; 2.466 (pλ$^-$c)*	~(2.448) ; -discrep. 0.3%
$-\Sigma_c^0$(2.4537) (ddc)	2.63 (n=1; m+k = 0)	2.467 (nλ$^-$c)* ;	(2.449) ; -discrep. 0.3%
$-\Sigma_b^+$(5.811) (uub)	5.62 (uub); (n,m,k) =0	5.79 (ppb)*; 5.913 (pλ$^+$b)*	(ps$^+$b) ≈5.812; -dis. 0.05%
$-\Sigma_b^0$(5813.5) (udb)	5.62 (udb); 5.81 (usb)	5.791(pnb)*; 5.914 (pλ$^-$b)*; (ps$^-$b)*	(ps$^-$b) =5.813; (pnb)^d =5.62
$-\Sigma_b^-$(5.815) (ddb)	5.62 (ddb); 5.81 (dsb)	5.792(nnb)*; 5.915(nλ$^-$b)*;5.98(nsb)*	(ns$^-$b) =5.814; -dis. 0.12%
$-\Xi_c^+$ (2.467); (usc)	2.51 (n+m+k = 0)	2.526 (psc)*	(2.512)′ ; -discrep. 1.8% (psc)′–$2z^0$ = (2.478)^d;(dis.0.5%)
$-\Xi_c^0$ (2.469) (dsc)	2.51 ----"-------	2.527 (nsc)*	(2.513)′ ; -discrep. 1.7% (nsc)′–$2z^0$=(2.479)^d;(dis.0.5%)
$-\Xi_c^{'+}$ (2.575); (usc); (′) ="prime"	2.51 ----"-------	2.604 (pvc)*	(2.586) ; -discrep. 0.4%
$\Xi_c^{'0}$ (2.578); (dsc) Λ_c(2593)	2.51 ----"-------	2.605 (nvc)*	(2.587) ; - discrep. 0.35%
$-\Xi_{cc}^{++}$ (3.621); (ucc)	3.71 ----"-------	3.748 (pcc)* ; ($s^{\pm}c^{\bullet}c^{\bullet}$)* = 3.648	(3.712)′ ; (3.614)($s^{\pm}c^{\bullet}c^{\bullet}$) (pcc)′–$z_2$ =(3.642)^d; (dis.0.6%)
Ξ_{cc}^+(unknown) (dcc)	3.71 ----"-------	3.749 (ncc)*	(3.713)′ ;(ncc)′– z_2 = (3.643)^d
Ξ_b^0(5.788) (usb)	5.81 ----"-------	(psb)* =5.978;	(5.812)′ –z^0; (pvb) = 5.886
Ξ_b^0(5.792)^0 ; Ξ_b^-(5.796)$^-$ (dsb)	5.81 ----"-------	(nsb$^{\pm}$)* ≈ 5.979;	Ξ_b(5.796)^d ≈ Ξ_b^*(5.813)′–z^0
$\Xi_b^{0'}$(usb); $\Xi_b^{-'}$(dsb); (unknown)	5.81 ----"-------	[(p;n)vb]* ≈ 6.053; ~5.914[(p;n)λb)*	[(p;n)vb) ≈ (5.887)′; (5.748)′
Ξ_b^-(5.935)^r(ssb);$\Lambda_b^{'}$(5.920)^r(usb)[27]	5.81 ----"-------	(λsb)* = 6.1	(5.935)′ (λsb)′ ; -discrep. → 0
Ξ_{bb}^0(unknown) (ubb)	10.31 ----"-------	10.644 (pbb)*	(10.312)′
Ξ_{bb}^-(unknown) (dbb)	10.31 ----"-------	10.645 (nbb)*	(10.312)′
Ξ_{cb}^+(unknown) (ucb)	7.01 ----"-------	7.196 (pcb)*	(7.012)′
Ξ_{cb}^0(unknown) (dcb)	7.01 ----"-------	7.197 (ncb)*	(7.013)′
$\Xi_{cb}^{+'}$;$\Xi_{cb}^{0'}$ (unknown) (ucb); (dcb)	7.01 ----"-------	7.317 (λ^+cb)* ; 7.319 (λ^{--}cb)*	(7.135)′ ; (7.135)′
$-\Omega_c^0$ (2.695); (2.698) (ssc$^+$)	2.7 ----"-------	2.718 (ssc)*;	(2.7)(ssc) ; (λλc) =2.57
Ω_b^{*-}(6.054 -CDF collab., 2009)(ssb) $-\Omega_b^{*-} \approx \Lambda_b^{0**}$(6.072)^r [27]	6 ----"-------	(svb)* = 6.240 ; (ssb)*= 6.166;	(6.074)′(svb) ; (≈ 6)^d (ssb); (6.074)′(sv$^-$b$^-$)′- z^0 = (6.056)^d
$-\Omega_{cc}^+$ (unknown) (scc); ψ_2(3823)^r	3.9 ----"-------	3.936 (scc)* ; (λcc)* = 3.871	(scc)′ =3.9 ; (λcc)′ =3.835
$-\Omega_{cb}^0$ (unknown) (scb)	7.2 ----"-------	7.384 (scb)* ; 7.458 (vcb)*	(7.2)′ ; (7.274)′
$-\Omega_{bb}^-$ (unknown) (sbb)	10.5 ----"-------	10.832 (sbb)* ; (vbb)* = 10.906	(10.5)′ ; (vbb)′ = (10.574)′
$-\Omega_{ccb}^+$; $-\Omega_{cbb}^0$(unknown),(ccb);(cbb)	8.4 ; 11.7 ----"-----	8.602 (ccb)* ; 12.046 (cbb)*	(8.4)′ ; (11.7)′
$-\Lambda_b^{'}$(6.146)^r; (6.152)^r (ssb)		6.302 (vvb)* ;	(vvb)′ = (6.148)′ ;
$-D_3^{*0}$(2.760)^r; Ω_c(2768)^r; B^*_j(5.732)		2.796 (v$^-$ s$^-$ c$^+$)* ; 5.902(b* λ n)	(2.774)′; (5.731)^d = (5.748)′- z^0
$-A_c^0$; A_c^- (unknown -predicted)^p		(λvc^+)* = 2.727; (λvc^-)* = 2.73;	(λvc)′ ≈ (2.7)′ ; (2.71)^p
(Ω_c^*)? ; (Λ_c(2.86)*); (Ω_{cc}^*)?		(vvc)*= 2.866 ; vcc)* = 4.01	(2.85)^p(vvc)′ ; (3.974)^p(vcc)′
-(Ω_b^*)?$^-$ (unknown- predicted)		6.036 (λλb)* ; 6.175 (λvb)*	(5.87)^p(λλb)′ ; (6.01)^p(λvb)′
? R_{hcc}; R_{hcb} (unknown-predicted)		(h′c c)* = 62.936; (h′c b)* = 66.384;	(62.9)^p ; (66.2)^p
? R_{hhc}; R_{hhb} (unknown-predicted)		(h′h′c)* = 120.72; (h′h′b)* = 124.166	(h′h′c)′ = (120.7)^p ; (124.)^p
? R_{hhh}; (unknown-predicted)		(h′h′h′)* = 180.4	(h′h′h′)* = (178.5)^p ;

Annex 2: Table 4: *The theoretic masses of cold baryons and of de-excited ("hot" formed) baryons,* $J^p\ ^3/_2$ *, (CGT)*

Baryons experimental mass (MeV), [16] (rest mass); $J^p\ ^3/_2$	**Theor. mass,** (cold baryon, CGT)*: p^*;n^*(~0.312;); λ^{-*}(0.435); s^{-*}(~0.5); v^-(0.574); c^{*+}(1.718); b^{*+}(5.154) ; b^{*-}(5.166) ; (GeV)	**Theor. mass, ,** GeV (de-excited quarks)$'$: λ^-(0.435) u; d = p; n (0.312); s(0.5); v^-(0.574); c (1.7); b (~5.0)	**Theoretic mass**, (GeV) of de-excited baryon ( )^d + predicted baryons- $z_1(3z^0)$; $z_2(4z^0)$; $z_3(6z^0)$;
$-N^{0*}$; Λ^{0*} (1.520) ; udd; sdu	1.514 (v s λ)* ; (s s s)* = 1.51	(v + s + λ)$'$ = 1.514	(1.514)
$-\Lambda_b^0$ (5.912); $-\Lambda_b^0$ (5.920); (?) ;	$(\lambda\ s\ b)^*$ = 6.089	$(\lambda\ s\ b)'$ = 5.935	$(\lambda\ s\ b)' - z^0 \approx 5.917$
Σ_s^{*-}(1385) dds ; Σ_c^{*++}(2518) uuc	$(v\ s\ p)^*$ = 1.390 ; $(p\ s^+\ c^*)$ = 2.529	$(v\ s\ p)'$ = 1.390 ; $(p\ s^+c)'$=2.511	1.390 ; 2.511
Σ^{*+}_c(2517.5); Σ^{*0}_c(2518.8)	$(p\ s^-c^*)$ = 2.530; $(n\ s^-c^*)$ = 2.531	$(ps^-c)'$=2.512; $(ns^-c)'$=2.513	2.512; 2.513
Σ^{*+}_b (5832.1) ; Σ^{*0}_b uub; udb	$(p\ v\ b^{*+})^*$ = 6.04; $(n\ v\ b^{*+})^*$ = 6.041	$(pv\ b)'$=5.886; $(nv\ b^+)'$= 5.887	$((p;n)\ v\ b^+)' - z_1 \approx (5.835)^d$
Σ^{*-}_b (5835.1) ddb	$(n\ v\ b^-)^*$ = 6.053	$(n\ v\ b^-)'$ = 5.899	$(n\ v\ b^-)' - z_1$ = $(5.847)^d$
Ξ^{*0}(1531.8) uus	$(\lambda^+\ v\ v)$ =1.583; $(\lambda^+ s\ v)$ = 1.509	$(\lambda^+\ v\ v)'$ = 1.583 ;	$(\lambda^+\ v\ v)'$ - z_1 = $(1.531)^d$
Ξ^{*-}(1535) uds	$(\lambda^-\ v\ v)$ = 1.584	$(\lambda^-\ v\ v)'$ = 1.584	$(\lambda^-\ v\ v)'$ - z_1 = $(1.532)^d$
Ξ^{*+}_c(2645.9) usc ; Ξ^{*0}_c(2645.9) dsc	$(s^{\pm} + s^- + c^*)^*$ = 2.718	$(s^{\pm} + s^- + c)'$ = 2.7	$(s^{\pm}s^-c^+)'$-$z_1 \approx$(2.647; 2.648)^d
D_j^*(2760); D_j(2740)	$(s^{\pm} + v^- + c^*)^*$ = 2.792	$(s^{\pm} + v^- + c^*)'$ = 2.774	$(s^{\pm}\ v^-c^*)'$-z^0;$2z^0$=2.757; 2.74
Ξ^{*+}_{cc} (unknown) dcc ; Ξ^{*++}_{cc} (unknown) ucc ; X(3842.7)	$(\lambda^{\pm} + c^* + c^*)^*$ = 3.871 $(s^{\pm} + c^* + c^*)^*$ = 3.936;	$(\lambda^{\pm} + c + c)'$ = 3.836 $(s^{\pm}c\ c)'$= 3.900;	$(\lambda^{\pm}c\ c)'$ - z_1 = $(3.783)^d$ $(s^{\pm}c\ c)'$ - z_1 = $(3.848)^d$
Ξ_{cc}(3519); X_{c1}(3510) ucc ;X_{c2}(3556)	$(\lambda^{\pm}c^{\bullet}\ c^{\bullet})^*$ = 3.566	$(\lambda^{\pm}c^{\bullet}\ c^{\bullet})'$ = 3.549; $(c^{\bullet}$=1.557)	$((3.549)' - 2z^0 = (3.515)^d$
Ξ^{*0}_b (5945.5) usb; $\Xi^{*-}_b(5955)^r$ dsb	$(s^- + s^- + b^{\pm*})^*$ = 6.154; 6.166	$(s^- + s^- + b^{\pm})'$ = 5.996; 6.008	$(2s^- + b^{\pm})'$-$z_1 \approx$(5.944; 5.956)^d
Ξ^{*0}_{bb} ; Ξ^{*-}_{bb} (unknown) ubb; dbb	$(\lambda^{\pm} + b^{-*} + b^{-*})^*$ = 10.768	$(\lambda^{\pm} + b^- + b^-)'$ = 10.459	$(s^{\pm} + 2b^+)' - z_2$ = $(10.431)^d$
Ξ^{*+}_{cb} (unknown) ucb	$(\lambda^- + c^{*} + b^{*+})^*$ = 7.307	$(\lambda^- + c^+ + b^+)'$ = 7.135	$(s^-c^+b^+)'$- z_1 = $(7.147)^d$
Ξ^{*0}_{cb} (unknown) dcb	$(\lambda^- + c^{-*} + b^{*+})^*$ = 7.308	$(\lambda^- + c^- + b^+)'$ = 7.139	$(s^-c^-b^+)'$- z_1 = $(7.151)^d$
Ω^-(1672.45) sss	$(v^-\ v^-\ v^-)^*$ = 1.722	$(v^-\ v^-\ v^-)'$ = 1.722	$(v^-\ v^-\ v^-)' - z_1$ = $(1.670)^d$
Ω^{*0}_c (2766) ssc	$(v^- + s^- + c^*)^*$ = 2.792	$(v^- + s^- + c)'$ = 2.774	discr.0.3% (isomeric.)
Ω^{*-}_b (unknown) ssb	$(v^- + s^- + b^{-*})^*$ = 6.24	$(v^- + s^- + b^-)'$ = 6.074	$(v^-\ s^-\ b^-)'$-z_3 = $(5.9697)^d$
Ω^{*+}_{cc} (unknown) scc X_{c2}(3930); Z_c(3900); X_c(3872) [24]	$(v^- + c^{+*} + c^{+*})^*$ = 4.01	$(v^- + c^+ + c^+)'$ = 3.974 $(3.974)' - 2z^0 = (3.939)^d$	$(v^-c^+c^+)'$–z_1 = $(3.922)^d$ $(v^-\ c^+\ c^+)'$ –z_2 = $(3.9045)^d$ $(v^-\ c^+\ c^+)'$ –z_3 = $(3.8697)^d$
Ω^{*0}_{cb} (unknown) scb	$(v^- + c^{+*} + b^{-*})^*$ = 7.458	$(v^- + c^+ + b^-)'$ = 7.274	$(v^-c^+\ b^-)'$ – z_3 = $(7.1697)^d$
Ω^{*-}_{bb} (unknown) sbb	$(v^- + b^{-*} + b^{-*})^*$ = 10.906	$(v^- + b^- + b^-)'$ = 10.574	$(v^-b^-\ b^-)'$ – z_3 = $(10.470)^d$
Ω^{++}_{ccc} (unknown) ccc	$(c^{+*} + c^{+*} + c^{+*})^*$ = 5.154	$(c^+ + c^+ + c^+)'$ = 5.1 $(c^{+\bullet} + c^{+\bullet} + c^{+\bullet})'$ = 4.67	$(c^+\ c^+\ c^+)'$ – z_3 = $(5.0)^d$ $(c^{+\bullet}c^{+\bullet}c^{+\bullet})'$– z_2 = $(4.6)^d$
Ω^{*+}_{ccb} (unknown) ccb	$(c^{+*} + c^{+*} + b^{-*})^*$ = 8.602	$(c^+ + c^+ + b^-)'$ = 8.4 $(c^{+\bullet} + c^{+\bullet} + b^{-\bullet})'$ = 7.858	$(c^+\ c^+\ b^-)'$ -z_3 = $(8.296)^d$ $(c^{+\bullet}\ c^{+\bullet}b^{-\bullet})'$-$z_3$ = $(7.753)^d$
Ω^{*0}_{cbb} (unknown) cbb	$(c^{-*} + b^{-*} + b^{-*})^*$ = 12.05	$(c^+ + b^- + b^-)'$ = 11.7	$(c^+ b^-\ b^-)'$-z_3 = $(11.595)^d$
Ω^{*0}_{bbb} (unknown) bbb	$(b^{-*} + b^{-*} + b^{-*})^*$ = 15.486	$(b^+ + b^- + b^-)' \approx 15.0$	$m(\Omega^{*0}_{bbb})' \approx m(f^{\pm})$
$\Sigma_b^-(6.097)^r$; $X_b^-(6.100)^r$ [27] $\Xi_b^{-'}(6.100)^r$; ( )^r-recently discovered	$(s + v + b^*)^*$ = 6.24; $(v^- + v^- + b^{-*})^*$ = 6.314;	$(s^- + v^- + b^-)'$= 6.074; $(v^- + v^- + b^-)'$= 6.148	$(6.096)^d = (vvb)'$-z_1= $\Xi_b^*\pi^0$ $(6.113)^d = (vvb)'$- $2z^0$

Annex 3: Table 5: *The theoretic masses of heavy pseudo-scalar mesons , conform to CGT*

Heavy mesons (MeV/c^2) -experimental mass- [31]	**Theoretic mass,** (cold meson, CGT)*, MeV/c^2	**Theoretic mass,** (de-excited meson, CGT)^{d}, MeV/c^2	**Observations / predictions**
η' (957.6) $^{1}/_{3}(u\ \bar{u}+d\ \bar{d}+s\ \bar{s})$	$\eta'(\lambda+\ \bar{s})^{*}$= 935; $\eta''(s+\ \bar{s})^{*}$= 1000	$(935)'$; $(965)^{d}$ = $\eta''(1000)'$- $2z^0$	$\eta''(s+\ \bar{s})'$ = 1000
$\eta_c(2980.3)(c\ \bar{c})$; η_b (9300)$(b\ \bar{b})$	3436$(c^{*}\ \bar{c}^{*})^{*}$; 3100 $(c^{\bullet}\ \bar{c}^{\bullet})^{*}$ 10332 $(b^{*}\ \bar{b}^{*})$; 9460$(b^{\bullet}\ \bar{b}^{\bullet})$	3030.5 $(c^{\bullet}\ \bar{c}^{\bullet})^{d}$ = $(c^{\bullet}\ \bar{c}^{\bullet})'$ -z_2 9338.4 $(b^{\bullet}\ \bar{b}^{\bullet})^{d}$ = $(b^{\bullet}\ \bar{b}^{\bullet})'$- z_π	$[(c\ \bar{c})'$ -$z_2]$ = 3330.5 $(b^{\bullet}\ \bar{b}^{\bullet})$ = 9460;
D^{+}; D^{0}(~1869); $(c\ \bar{d})$; $(c\ \bar{u})$	$(c^{+}(s\ \bar{s}v^{+})\ \bar{n})^{*}$;$(c^{+}(s\ \bar{s}v^{+})\ \bar{p})^{*}$	$(1863)^{d}$ = $(c^{\bullet}\ \bar{n})$ = $(c\ \bar{n}\ )'$ - $\pi^{\pm}$	$(c^{+}(v\ \bar{v}v^{+})\ \bar{n})^{*}\approx 2031$
X(5568) (?)^{x} [24]	$(v^{*}\ \bar{b}^{*}\ )^{*}$ = 5.728	5574 $(v\ \bar{b}\ )^{d}\rightarrow B_s^{0}(\lambda\ \bar{b})' + \pi^{\pm}$	(x-un-clear structure)
D_s^{+}(1968.4) $(c\ \bar{s})$	$(c^{+}(s\ \bar{s}v^{+})\ \bar{s})^{*}$	1968 $(c^{\bullet}\ \bar{\lambda})^{d}$ = $(c^{\bullet}\ \bar{\lambda})'$ – z^0	$(c^{+}(v\ \bar{v}v^{+})\ \bar{s})^{*}\approx 2218$
B^{+};B^{0}(~5279) $(u\ \bar{b})$; $(d\ \bar{b})$	$(p\ \bar{b}^{*})^{*}$; $(n\ \bar{b}^{*})^{*}\approx 5478$	5278 $(p\ \bar{b})^{d}$ = $(p\ \bar{b})'$ –$z_1(3z^0)$	$(p\ \bar{b}^{\bullet})$;$(n\ \bar{b}^{\bullet})\approx 5042$
B_s^{0}(5366.3) $(s\ \bar{b})$; $\Lambda_b(5425)^{r}$	$(\lambda\ \bar{b})^{*}$= 5435; 5666 $(s\ \bar{b}^{*})^{*}$	5365.5 $(\lambda\ \bar{b})^{d}$ = $(\lambda\ \bar{b})'$ –z_2 $(\lambda\ \bar{b})'$ = 5435; $z_2 = 4z^0$	$(s\ \bar{b})' - z_2$ = 5430.5 (Λ_b) $(s\ \bar{b}^{\bullet})' - z_2$ = 5244
B_c^{+}(6276±4) $(c\ \bar{b})$	$(c^{*}\ \bar{b}^{*})^{*}$ = 6884	$(6297)^{d}$ = $(c^{\bullet}\ \bar{b}^{\bullet})$ = $(c\ \bar{b}^{\bullet})'$-$\pi^0(2z_2)$	$(c\ \bar{b}^{\bullet})'$=6440; $(c\ \bar{b})$ =6700

Annex 4: Table 6: *The theoretic masses of heavy vector mesons , conform to CGT*

Heavy mesons (MeV/c^2) -experimental mass- [31]	**Theoretic mass,** (cold meson, CGT)*, MeV/c^2	**Theoretic mass,** (de-excited meson, CGT)^{d},MeV/c^2;	**Observations + Predictions (MeV/c^2)**
$\rho^{+}(775)$; ρ^{0} (775.26); $\rho^{-}(775)$; $(u\ \bar{d})$; $(d\ \bar{d})$; $(d\ \bar{u})$;	812$(u\ \bar{s})^{*}$; 813$(d\ \bar{s})^{*}$; 812 $(s\ \bar{u})^{*}$	$(777.3)^{d}$ = $(u\ \bar{s})' - 2z^0$ $(778.3)^{d}$ = $(d\ \bar{s})' - 2z^0$	z^0 = 17.374 MeV/c^2 z_2 = 69.5; $z_3 = z_\mu = 3z^0$
ω(782.65) ; $(u\ \bar{u}+d\ \bar{d})/\sqrt{2}$	813$(d\ \bar{s})^{*}$	$(795.6)^{d}$ = $(d\ \bar{s})' - z^0$	813 = $(d\ \bar{s})$
ϕ (1019.46) ; $(s\ \bar{s})$	1009.5 $(s\ \bar{s})^{*}$	$(1022)^{d}$ = $(s\ \bar{v})'$ -$z_1(3z^0)$	(1009.5) = $(s\ \bar{s})$
J/ψ (3096.9); $(c\ \bar{c})$	3114 $(c^{\bullet}\ \bar{c}^{\bullet})^{*}$	$(3096.7)^{d}$ = $(c^{\bullet}\ \bar{c}^{\bullet})'$ - z^0	$m(c^{\bullet})$ = 1557 (CGT)
Υ(1S) (9460.3) ; $(b\ \bar{b})$	9480 $(b^{\bullet}\ \bar{b}^{\bullet})^{*}$	$(9462.6)^{d}$ = $(b^{\bullet}\ \bar{b}^{\bullet})'$ - z^0	$m(b^{\bullet})$ = 4744 (CGT)
K^{*+}(891.66)$(u\ \bar{s})$; K^{*0}(895.81) $(d\ \bar{s})$	935 $(s^{-}\ \bar{\lambda}^{+})$; 936 $(s^{-}\ \bar{\lambda}^{-})$	$(\sim 900)^{d}$ = $(s^{-}\ \bar{\lambda}^{+})'$- $2z^0$; $(s^{-}\ \bar{\lambda}^{-})'$- $2z^0$	870$(\lambda^{+}\ \bar{\lambda}^{-})'$;871 $(\lambda^{-}\ \bar{\lambda})'$
D^{*+}(2010.26) $(c\ \bar{d})$; D^{*0}(2007) $(c\ \bar{u})$	2012 $(c\ \bar{d})$; 2011 $(c\ \bar{u})$	2012 $(c\ \bar{d})'$; 2011 $(c\ \bar{u})'$	excited state ( )'
D^{*+}_s (2112.1) $(c\ \bar{s})$	2135 $(c\ \bar{\lambda})$	$(2117.6)^{d}$ = $(c\ \bar{\lambda})'$ - z^0	m(c) = 1700
B^{*+}(5325.2) $(u\ \bar{b})$; B^{*0}(5325.2) $(d\ \bar{b})$	5312 $(u\ \bar{b})$; ~5436$(\lambda^{\pm}\ \bar{b}^{-})$	$(\sim 5331)^{d}$ = $(\lambda^{+}\ \bar{b})'$ -z_3 ; $(\lambda^{-}\ \bar{b})'$ –z_3	5312$(u\ \bar{b})$; 5313$(d\ \bar{b})$;
B^{*0}_s(5415.4) $(s\ \bar{b})$	5435 $(\lambda\ \bar{b})$;	(5417.6)^{d} = $(\lambda\ \bar{b})'$ - z^0 ;	m(b) = 5000
B^{*+}_c(unknown) ; $(c\ \bar{b})$	6700 $(c\ \bar{b})$; 6557 $(c^{\bullet}\ \bar{b})$;	6700 $(c\ \bar{b})'$; 6557 $(c^{\bullet}\ \bar{b})'$;	$(c^{\bullet}\ \bar{b}^{\bullet})'$ = 6300

Annex 5: Table 7: *Theoretic masses of non-excited and de-excited multi-quark particles, predicted by CGT*

Multi-quark Baryons (q-q-q…q) -predicted by CGT ($c = c^{+}(^{2}/_{3}e)$) ; $b = b^{-}(-^{1}/_{3}e)$) ($t = t^{+}(^{2}/_{3})e$; $m(t) \approx (7x5)m_b$	**Theoretic mass**, GeV/c^2, (CGT)* (cold quarks/baryons)* p^{*};n^{*}(~0.312;); λ^{-*}(0.435); s^{-*}(~0.5); v^{-}(0.574); c^{*+}(1.718); b^{*-}(5.166); $m(t^{*}) = (7x5)m(b^{*}) = 180.81$	**Theoretic mass**, GeV/c^2, (de-excited q. ()^{d}./excited bar.()$'$ p; n^{d} (~0.312)^{d}; λ^{-}(0.435)^{d}; s^{-}(~0.504)^{d}; v^{-}(0.574)^{d} ; c^{+}(1.7)^{d} ; b^{-}(~5.0)^{d}; m(t) = (7x5)m(b) = 175	**Observations closest experimental ( )^{e} particle/value** [24; 27] (GeV)^{e}
$[(u\ \bar{u})\ \bar{v}^{-}\ c]^{+}$; $[(u\ \bar{u})\ \bar{v}^{+}b]^{-}$	$(2.916)^{*}$; $(6.364)^{*}[(u\ \bar{u})\ \bar{v}^{+}b^{*}]^{*}$	(2.898); $[(6.198)'- z_1] = (6.146)^{d}$	$X_c(2.9)^{e}$; $\Lambda_b{}^{0}(6.146)^{d}$ [27]
$[(u\ \bar{u})\ \bar{c}\ b^{-}]^{0}$; $[(u\ \bar{u})b^{+}\ \bar{b}^{-}]^{0}$	$(7.509)^{*}[(u\ \bar{u})\ \bar{c}^{*}b^{*}]^{0}$; $(10.956)^{*}$	(7.325) ; $[(10.624)'_{bb} \pm (z^{0};2z^{0})]$	$Z_b^{\pm}(10.610)$; (10.65) [24]
$[(u\ \bar{u})\ vcb]^{0}$; $[(u\ \bar{u})\ svcb]^{0}$	$(8.083)^{*}$; $(8.583)^{*}$	(7.9) ; (8.4)	
$[(s\ \bar{s})\ \bar{v}^{-}\ c]^{+}$; $[(s\ \bar{s})\ \bar{v}^{+}b]^{-}$ $[(\lambda\ \bar{\lambda})\ \bar{s}^{-}\ c]^{+}$; $[(s\ \bar{s}^{-})\ \bar{\lambda}\ c]^{+}$	$(3.292\ ;\ 6.74)^{*}$ $(3.088\ ;\ 3.153)^{*}$	$(3.274\ ;\ 6.574)$; $(3.070\ )' - z^{0}$ $(3.135)'$; $(3135)' - z^{0} = (3.118)^{d}$ $(3.135)'–2z^{0}$;$3z^{0}$ $(3.10)^{d}$; ≈ (3.083)	$\Omega_c{}^{0}(3.119)^{e}$; $\Xi_c(3.055)^{e}$ $J/\psi(1S)(3.097)^{e}$; $\Omega_c{}^{0}(3.09)$ $\Xi_c(3.07)' \rightarrow \Xi_c(2965)^{e} + \mu$
$[(s\ \bar{s})\ c\ \bar{b}^{-}]^{+}$; $[(v\ \bar{v})\ \bar{s}^{-}\ c]^{+}$	$(7.884)^{*}$; $(3.366)^{*}$ $(2966)^{*}[(n\ \bar{\lambda})\ \bar{s}^{-}\ c]^{+}$	$(7.7)'$; $(3.348)'$; $(2948)'$; $(2948)' - z^{0} = (2931)^{d}$	$\Xi_c{}^{0}(2939)^{r}$; $\Xi_c{}^{0}(2923)^{r}$
$[(v\ \bar{v})\ s^{+}\ \bar{b}]^{+}$; $[(v\ \bar{v})\ c\ \bar{b}]^{+}$	$(6.814)^{*}$; $(8.032)^{*}$	$(6.648)'$; $(7.848)'$	
$[(c\ \bar{c})\ s^{+}\ \bar{v}^{-}]^{+}$; $[(c\ \bar{c})v^{-}\ \bar{v}^{-}]^{0}$	$(4.51)^{*}$; $(4.592)^{*}$;	$(4.474)' - z^{0} = (4.456)'$; $(4.548)^{d}$ $(4.474)'- z_u = (4.37)^{d}$; $(4.548)'-z_1$	$P_c(4.457)^{e}$ $-z^{0} = P_c(4.44)^{e}$ $Z_c(4.38)^{e}$; $X(4.5)^{e}$ [27]
$[c\ \bar{c}\ \bar{c}c]$; $[b^{-}\ \bar{s}^{-}\ \bar{\lambda}^{-}\ \lambda^{-}]^{0}$	$(6.872)^{*}$; $(6.536)^{*}$	$(6.8)'$; $(6.370)' - z^{0} = (6.352)^{d}$	$X(6.9)^{e}$;$\Omega_b(6.35)^{e}$; (6.34)^{e}
$[(c\ \bar{c})\ p^{+}\ \bar{n}^{-}]^{+}$; $[(b\ \bar{b})\ v^{-}\ \bar{n}^{-}]^{0}$	$(4.061)^{*}$; $(11.195)^{*}$ $(6.414)^{*}$ $[(p;\ \bar{p})\ p\ p\ b^{-}]^{+}$	$(4.025)'$; $(10.887)'$ $(6.248)'$; $(6.230)^{d} \approx (6.248)' - z^{0}$	$Z_c(4.020)^{e}$; $Y_b(10.890)^{e}$ [24] ; $\Xi_b(6.227)^{r}$
$[(c\ \bar{c})s^{+}\ \bar{b}]^{+}$; $[(c\ \bar{c})\ v^{+}\ \bar{b}]^{+}$	$(9.102)^{*}$; $(9.174)^{*}$	$(8.9)'$; $(8.974)'$	
$[(\ \bar{c}\lambda^{-}\ \bar{\lambda}^{-}\lambda^{-}]^{-}$; $[(c\ \bar{c})\ \lambda^{-}\lambda^{-}\lambda^{-}]^{-}$	$(3.027)^{*}$; $(4.749)^{*}$ $(4.757)(c\ \bar{c}v\lambda n)^{-*}$; $(4.184)^{*}(c\ \bar{c}n\ \bar{\lambda})^{*}$	$(3.005)'$; $(4.705)'$; $(4.148)'(c\ \bar{c}\ n\ \bar{\lambda})$	$D_j(3.0)^{e}$; $X_c(4.700)^{e}$, [27] $X(4.140)^{e}$-$2z^{0} \approx Z_c(4100)^{e}$
$[b\ \bar{\lambda}\ m^{\pm}\ \bar{m}^{\pm}]$; $[(b\ \bar{b})s^{+}\ \bar{v}^{-}]^{+}$	$(5.728)^{*}$; $(11.406)^{*}$	$(5574)'$; $(11.074)'$; $(11.074)'- z_1(3z^{0}) = (11.022)^{d}$	$X(5568)^{e} \rightarrow B_s{}^{0}\pi^{\pm}$ $Y^{-}(11.020)^{e}$
$[(b\ \bar{b})\ \bar{s}^{-}\ c]^{+}$; $[(b\ \bar{b})\ \bar{v}^{-}\ c]^{+}$	$(12.55)^{*}$; $(12.624)^{*}$	$(12.218)'$; $(12.292)'$	
$[(s\ \bar{s})\ v^{-}c^{+}b^{-}]^{0}$; $[(v\ \bar{v})s^{-}c^{+}b^{-}]^{0}$	$(8.458)^{*}$; $(8.532)^{*}$;	$(8.292)'$; $(8.366)'$;	
$[(c\ \bar{c})\ s^{-}v^{-}b^{-}]^{-}$; $[(b\ \bar{b})\ s^{-}v^{-}c^{+}]^{0}$	$(9.676)^{*}$; $(13.124)^{*}$	$(9.474)'$; $(12.81)'$	$Y^{-}(1S)(9.46)^{e}$
$[s^{-}\ \bar{v}^{-}c^{\pm}b^{-}t^{+}]^{+;0}$; $[n^{-}s^{-}v^{-}c^{+}b^{-}t^{+}]^{0}$	$(188.7)^{*}$; $(189.01)^{*}$	$(181.77)'$; $(182.08)'$	
$[m_1{}^{+}\ \bar{m}_2{}^{-}v^{-}\ \bar{v}^{-}\ c^{-}\ \bar{c}^{-}]^{+}$; $\Theta[t\ \bar{t}]^{0}$ $3[3(q_1\ \bar{q}_1) + q_2{}^{\pm}]$; $2\Theta[t\ \bar{t}\ t\ \bar{t}]^{0}$	$(4.723)^{*}$; $(721.5)^{*}$ q_1=p; q_2=n; $3[3(q_1\ \bar{q}_1)+q_2] = (6.555)$	$(4.687)'$;$4.687'–z_1(3z^{0}) = (4.635)^{d}$ $(4.631)^{d} = (n\lambda scc\text{-}z^{0})^{d}$; $2\Theta(700)'$	X(4.685) ; X(4.630) [27]
$[(b\ \bar{b})\ p^{+}\ n^{-}\ \lambda^{-}\ s^{-}\ v^{-}\ c^{+}]^{0}$	(14.183)*	$(13.833)'$	

Annex 6: Table 8: *Theoretic masses of non-excited baryonic (tri –quark) particles possible in CGT*

$m_1{}^{+}$; m_2 (~0.0695)GeV	p^{+} (0.312) ; n^{-} (0.313)	$\lambda^{\pm}$ (0.435)	$s^{\pm}$ (0.5)	$v^{\pm}$ (0.574)	$c^{\pm}$; $c^{\bullet}$ (1.7)	$b^{\pm}$; $b^{\bullet}$ (5)	$f^{\pm}$ (14.86)	$h^{\pm}$ (59.5)	$t^{\pm;}$ (175) GeV
$m_1\ m_2$ +	$m_1 m_2$(p;n)	$m_1\ m_2\ \lambda$	$m_1\ m_2\ s$	$m_1\ m_2\ v$	$m_1\ m_2\ c$	$m_1\ m_2\ b$	$m_1\ m_2\ f$	$m_1\ m_2$ (h)	$m_1\ m_2$ (t)
0.139	0.451; 0.452	0.574	0.639	0.713	1.839	5.139	15.00	59.639	175.139
$m_{1;2}$p+	$m_{1;2}$ p (p; n)	$m_{1;2}$ p λ	$m_{1;2}$ p s	$m_{1;2}$ p v	$m_{1;2}$ p c	$m_{1;2}$ p b	$m_{1;2}$ p f	$m_{1;2}$ p (h)	$m_{1;2}$ p (t)
0.3815	~0.6936	0.8165	0.8815	0.9555	2.0815	5.3815	15.242	59.8815	175.3815
p n+	p n (p; n)	p n λ	p n s	p n v	p n c	p n b	p n f	p n (h)	p n (t)
0.625	0.938	1.06	1.125	1.199	2.325	5.625	15.486	60.125	175.625
(p;n) λ+	(p;n)λ (p; n)	(p;n)λ λ	(p;n)λ s	(p;n)λ v	(p;n) λ c	(p;n)λ b	(p;n)λf	(p;n)λ(h)	(p;n)λ(t)
0.748	1.06; 1.07	1.183	1.248	1.322	2.448	5.748	15.605	60.248	175.748
λ s +	λ s (p; n)	λ s λ	λ s s	λ s v	λ s c	λ s b	λ s f	λ s (h)	λ s (t)
0.935	1.247; 1.248	1.37	1.435	1.509	2.635	5.935	15.796	60.435	175.935
λ v +	λ v (p; n)	λ v λ	λ v s	λ v v	λ v c	λ v b	λ v f	λ v (h)	λ v (t)
1.009	1.321; 1.322	1.446	1.509	1.583	2.709	6.009	15.870	60.509	176.009
λ c +	λ c (p; n)	λ c λ	λ c s	λ c v	λ c c	λ c b	λ c f	λ c (h)	λ c (t)
2.135	2.447; 2.448	2.570	2.635	2.709	3.835	7.135	16.996	61.635	177.135

λ b +	λ b (p; n)	λ b λ	λ b s	λ b v	λ b c	λ b b	λ b f	λ b (h)	λ b (t)
5.435	5.747; 5.748	5.870	5.935	6.009	7.135	10.435	20.295	64.935	180.435
λ f +	λ f (p; n)	λ f λ	λ f s	λ f v	λ f c	λ f b	λ f f	λ f (h)	λ f (t)
15.295	15.608	15.730	15.795	15.869	16.995	20.155	30.155	74.795	190.295
λ (h;t) +	λ (h;t) (p; n)	λ(h;t) λ	λ (h;t) s	λ (h;t) v	λ (h;t) c	λ (h;t) b	λ (h;t)f	λ t (h)	λ t (t)
59.935 175.435	60.258 175.758	60.370 175.870	60.435 175.935	60.509 176.009	61.635 177.135	64.935 180.435	74.795 190.295	119.435	350.435
s v +	s v (p; n)	s v λ	s v s	s v v	s v c	s v b	s v f	s v (h)	s v (t)
1.074	1.386; 1.387	1.509	1.574	1.648	3.774	6.074	15.934	60.574	176.074
s c +	s c (p; n)	s c λ	s c s	s c v	s c c	s c b	s c f	s c (h)	s c (t)
2.2	2.512; 2.513	2.635	2.7	2.774	3.9	7.2	17.060	61.7	177.2
s b +	s b (p; n)	s b λ	s b s	s b v	s b c	s b b	s b f	s b (h)	s b (t)
5.5	5.812; 5.813	5.935	6.00	6.074	7.2	10.5	20.360	65	180.5
s f +	s f (p; n)	s f λ	s f s	s f v	s f c	s f b	s f f	s f (h)	s f (t)
15.360	15.673	15.795	15.860	15.934	17.060	20.360	30.360	74.860	190.360
s t +	s t (p; n)	s t λ	s t s	s t v	s t c	s t b	s t f	s t (h)	s t (t)
175.5	175.813	175.935	176	176.074	177.2	180.5	190.360	235	350.5
v c +	v c (p; n)	v c λ	v c s	v c v	v c c	v c b	v c f	v c (h)	v c (t)
2.274	2.586; 2.587	2.709	2.774	2.848	3.974	7.274	17.134	61.774	177.274
v b +	v b (p; n)	v b λ	v b s	v b v	v b c	v b b	v b f	v b (h)	v b (t)
5.574	5.886; 5.887	6.009	6.074	6.148	7.274	10.574	20.434	65.074	180.574
v f +	v f (p; n)	v f λ	v f s	v f v	v f c	v f b	v f f	v f (h)	v f (t)
15.434	15.747	15.869	15.934	16.008	17.134	20.434	30.294	75.134	190.434
v h +	v h (p; n)	v h λ	v h s	v h v	v h c	v h b	v h f	v h (h)	v h (t)
60.574	60.887	61.009	61.074	61.148	62.274	65.574	75.434	120.074	350.574
c b +	c b (p; n)	c b λ	c b s	c b v	c b c	c b b	c b f	c b (h)	c b (t)
6.7	7.013	7.135	7.2	7.274	8.4	11.7	21.560	66.2	181.7
c f +	c f (p; n)	c f λ	c f s	c f v	c f c	c f b	c f f	c f (h)	c f (t)
16.560	16.873	16.995	17.060	17.134	18.260	21.560	31.560	76.060	191.560
c t +	c t (p; n)	c t λ	c t s	c t v	c t c	c t b	c t f	c t (h)	c t (t)
176.7	177.0123	177.135	177.2	177.274	178.4	181.7	191.560	236.2	351.7
b f +	b f (p; n)	b f λ	b f s	b f v	b f c	b f b	b f f	b f (h)	b f (t)
19.860	20.173	20.295	20.360	20.434	21.560	24.860	34.860	79.360	194.860
b (h;t) +	b (h;t) (p; n)	b (h;t) λ	b (h;t) s	b (h;t) v	b (h;t) c	b (h;t) b	b (h;t)f	b(h;t)(h)	b(h;t)(t)
64.5 180	64.813 180.313	64.935 180.435	65 180.5	65.074 180.574	66.2 181.7	69.5 185	79.360 194.860	124 239.5	239.5 355