

The masses of baryons in a cold genesis theory

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Abstract

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

Annex 1: Table 2: The theoretic masses of cold baryons and of de-excited ("hot" formed) baryons, (CGT)

Baryons <u>experimental mass</u> (GeV), (13) J^P $\frac{1}{2}$	<u>Theor. mass, (Souza):</u> u; d (0.31); s(0.5); c(1.7); b(5)	<u>Theoretic mass, (CGT)*:</u> $p^+; n^+ (\sim 0.312;); \lambda^+ (0.435); s^+ (\sim 0.5);$ $v^+ (0.574); c^+ (1.718); b^+ (5.166)$	<u>Observations</u> () ^d -de-excited state(GeV) + predicted baryons-
N (0.938±0.939); (udd)	~0.939	~0.939; (ppn); (pnn)	(') = "prime charmed"
$-\Delta^{(++)}$ (1.232)	1.24 (n+m+k=1)	~1.25; ($s^\pm + \lambda^\pm + p^+(n)$)*	$\approx 0.31 \times 4 = 4u$ (compound)
$-\Lambda^0$ (1.115) (uds)	1.12 (n+m+k=0)	~1.13; (n + p + s)*	-(1.13) ^d
$-\Sigma^+; \Sigma^-; \Sigma^0$ (1.189±1.197) (uus; uds ; dds)	1.12 (n+m+k=0)	~1.199; ~1.2; (v+2p)*; (v+p+n)*; (v+2n)*	discrepancy at Souza:6.3% -discrep. at CGT: 0.25%
$-\Xi^0$ (1.314); Ξ^- (1.32) (u;d)ss	1.31 (n+m+k=0)	~1.321; 1.323; (2s+p)*;(2s+n)*	-(1.32) ^d ; (2s+λ) = 1.44
$-\Omega^-$ (1.675) (sss)	1.5 (n+m+k=0)	1.722 (3v)*; 1.653 (2v+s)*	-(3v) ^d =1.7; (2v+s)=1.653
Θ^- (1.521)	1.5 (n+m+k=0)	1.514 (v + s + λ)*	-(1.51) ^d ; (v+2s) ^d = 1.583
$-\Lambda_c^+$ (2.286) (udc)	2.32; (n+m+k=0)	2.343 (pnc)* = (pnc)*	-(2.325) ^d ; (c* = 3v*)
$-\Lambda_b^+$ (5.619) (udb)	5.62; (n+m+k=0)	5.791 (pnb)* = (pnb)*	-(5.625) ^d ; (b* = 3c*)
$-\Sigma_c^{++}$ (2.454) (uuc)	2.63 (n=1; m+k=0)	2.465 (pλ+c)*; (ppc)* = 2.342	-(2.447) ^d ; -discrep. 0.3%
$-\Sigma_c^+$ (2.4529) (udc)	2.63 (n=1; m+k=0)	2.466 (pλc)*; (pnc)* = 2.343	(2.448) ^d ; (psc) ^d = 2.5;
$-\Sigma_c^0$ (2.4537) (ddc)	2.63 (n=1; m+k=0)	2.467 (nλc)*; (nnc)* = 2.344	(2.449) ^d ; -discrep. 0.3%
$-\Sigma_b^+$ (5.811) (uub)	5.62 (uub); (n,m,k) = 0	5.79 (ppb)*; 5.913 (pλ+b)*	(ps*b) ^d ≈ 5.808; -dis. 0.05%
$-\Sigma_b^0$ (unknown) (udb)	5.62 (udb); 5.81 (usb)	5.791(pnb)*; 5.913 (pλb)*	(ps b) ^d = 5.808;
$-\Sigma_b^-$ (5.815) (ddb)	5.62 (ddb); 5.81 (dsb)	5.792(nnb)*; 5.914(nλb)*; 5.98(nsb)	(ns b) ^d = 5.809; -dis. 0.12%
$-\Xi_c^+$ (2.467); (usc)	2.51 (n+m+k=0)	2.526 (psc)*	(2.512) ^d ; -discrep. 1.8%
$-\Xi_c^0$ (2.47) (dsc)	2.51 ----"-----"	2.527 (nsc)*	(2.513) ^d ; -discrep. 1.7%
$-\Xi_c^{*+}$ (2.575); (usc)	2.51 ----"-----"	2.604 (pvc)*	(2.586) ^d ; -discrep. 0.4%
Ξ_c^0 (2.578) (dsc)	2.51 ----"-----"	2.605 (nvc)*	(2.587) ^d ; - discrep. 0.35%
$-\Xi_{cc}^{*++}$ (3.621); (ucc)	3.71 ----"-----"	3.748 (pcc)*	(3.712) ^d ; -discrep. 2.5%
Ξ_{cc}^+ (unknown) (dcc)	3.71 ----"-----"	3.749 (ncc)*	(3.713) ^d
Ξ_b^0 (5.788) (usb)	5.81 ----"-----"	(psb)* = 5.978;	(5.812) ^d ; (pnb) ^d = 5.62
Ξ_b^- (5.791) (dsb)	5.81 ----"-----"	(nsb)* = 5.979; ;	(5.813) ^d ; (nnb) ^d ≈ 5.62
Ξ_b^0 (unknown) (usb)	5.81 ----"-----"	5.913 (pλb)*; (psb)* = 5.978	(5.747) ^d ; (psb) ^d = 5.812
Ξ_b^- (unknown) (dsb)	5.81 ----"-----"	5.914 (nλb)*; (nsb)* = 5.979	(5.748) ^d ; (psb) ^d = 5.813
Ξ_{bb}^0 (unknown) (ubb)	10.31 ----"-----"	10.644 (pbb)*	(10.312) ^d
Ξ_{bb}^- (unknown) (dbb)	10.31 ----"-----"	10.645 (nbb)*	(10.312) ^d
Ξ_{cb}^+ (unknown) (ucb)	7.01 ----"-----"	7.196 (pcb)*	(7.012) ^d
Ξ_{cb}^0 (unknown) (dcb)	7.01 ----"-----"	7.197 (ncb)*	(7.013) ^d
Ξ_{cb}^{*+} (unknown) (ucb)	7.01 ----"-----"	7.317 (λ ⁺ cb)*	(7.135) ^d
Ξ_{cb}^0 (unknown) (dcb)	7.01 ----"-----"	7.319 (λ ⁻ cb)*	(7.135) ^d
$-\Omega_c^0$ (2.695) (ssc)	2.7 ----"-----"	2.718 (ssc)*; (λsc)* = 2.653	(2.7) ^d ; (λλc) ^d = 2.57
$-\Omega_b^-$ (6.071) (ssb)	6 ----"-----"	(ssb)* = 6.166; (λsb)* = 6.101	(≈6) ^d ; (λλb) ^d = 5.87
$-\Omega_{cc}^+$ (unknown) (scc)	3.9 ----"-----"	3.936 (scc)*; (vcc)* = 3.982	(3.9) ^d ; (λcc) ^d = 3.44
$-\Omega_{cb}^0$ (unknown) (scb)	7.2 ----"-----"	7.384 (scb)*	(7.2) ^d
$-\Omega_{cb}^-$ (unknown) (scb)	7.2 ----"-----"	7.458 (vcb)*	(7.247) ^d
$-\Omega_{bb}^-$ (unknown) (sbb)	10.5 ----"-----"	10.832 (sbb)*	(10.5) ^d ; Obs.: g = (7x5)v
$-\Omega_{ccb}^+$ (unknown) (ccb)	8.4 ----"-----"	8.602 (ccb)*	(8.61) ^d ; Obs.: t = (7x5)b
$-\Omega_{cbb}^0$ (unknown) (cbb)	11.7 ----"-----"	12.046 (cbb)*	(12.05) ^d ; Obs.: f = (7x5)c
$-\theta_c^0$ (unknown)		2.653 (λsc ⁺)*; (λvc ⁺)* = 2.727;	(2.635) ^d ; (λvc) ^d ≈ 2.7
$-\theta_c^-$ (unknown)		2.657 (λsc ⁻)*; (λvc ⁻)* = 2.731;	Obs.:m(c ⁻) = 1.722GeV/c ²
$-\theta_b^-$ (unknown)		6.175 (λvb)*	(6.009) ^d

(13) Griffiths, David J. "*Introduction to Elementary Particles*" (2nd revised ed.), WILEY-VCH, pp. 181–188, (2008),