

Shortened great table of elementary particles.

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Abstract

Stable particles (**p +, n0, D, He-3, α**) moving with speeds (**0,3 c – 0,99 c**) creates baryons and mesons.

Stable **electrons** moving with speeds (**0,99 c – c**) creates leptons (**μ^- , τ^-**), neutrinos (**ν_e , ν_μ , ν_τ**) and bosons **W +, W-, Z**.

Speeds of electrons and protons in atoms are smaller. For example: An electron moving at a speed **$v_e = 0,003c$** creates spectral line **H α** .

Weak interactions are caused with stable **electrons**, which creates leptons, neutrinos and bosons **W +, W-, Z**.

The strong interactions are caused with stable particles (**p +, n0, D, He-3, α**), which creates baryons and mesons. Therefore creation and annihilation operators in physics are irrelevant.

Theory

Calculation of the kinetic energy of a particle moving at the velocity of v , [1] p. 51-52:

$$T_{\text{kin}} = \frac{mc^2}{\cos^2 \vartheta} \left[\ln \left| 1 - \frac{v}{c} \cos \vartheta \right| + \frac{\frac{v}{c} \cos \vartheta}{1 - \frac{v}{c} \cos \vartheta} \right]$$

while ϑ isn't $\frac{\pi}{2}, \frac{3\pi}{2}$

For $\vartheta = 0^\circ$ we have the kinetic energy in the direction of motion

$$T_{\text{kin}_d} = mc^2 \left[\ln \left| 1 - \frac{v}{c} \right| + \frac{\frac{v}{c}}{1 - \frac{v}{c}} \right]$$

For $\vartheta = 180^\circ$ we have the kinetic energy against the direction of motion

$$T_{\text{kin}_a} = mc^2 \left[\ln \left| 1 + \frac{v}{c} \right| - \frac{\frac{v}{c}}{1 + \frac{v}{c}} \right]$$

Kinetic energy /of electron , proton , neutron, alpha particle./

$E = mc^2 \left[\ln \left| 1 - \frac{v}{c} \right| + \frac{v/c}{1 - v/c} \right]$ in direction of motion of electron, proton ,
where v is velocity of electron proton , neutron, alpha particle.

Kinetic energy /of electron , proton , neutron, alpha particle./

$E = mc^2 \left[\ln \left| \frac{1+v/c}{1-v/c} \right| \right]$ against direction of motion of electron , proton ,
 where v is velocity of electron , proton , neutron, alpha particle.

$\frac{v}{c}$	Front of electron, proton, neutron, deuteron, He-3, α -particle $\left[\ln \left 1 - \frac{v}{c} \right + \frac{\frac{v}{c}}{1 - \frac{v}{c}} \right]$	Behind of electron, proton, neutron, deuteron, He-3, α -particle $\left[\ln \left 1 + \frac{v}{c} \right - \frac{\frac{v}{c}}{1 + \frac{v}{c}} \right]$	Decay modes
Electron 0,002717146 It is in the direction of motion	3,704855771252357587813986763267e-6 1,8931773275045679448456130994356 eV Lambda _{id} (v/c= 0,002717146)=hc/ E _{k,id} =6549,00051928391151030938994e-10m 4,5776826115258921719509259976e+14 Hz 1,8931773275045679448456130994356 eV		
Electron It should be in the direction of motion	3,704856065018122815706535948504e-6 Lambda_{id} = c/ f_{max}= 6549e-10m 4,5776829744999236524660253474e+14 Hz 1,8931774776185590593983814322796 eV		
Electron It should be against the direction of motion		3,6890835289347249992492175652666e-6 1,8851177285881014565911509807 eV Lambda_{ad} = c/ f_{min}= 6577e-10m 4,55819458719781055192336932e+14 Hz 1,88511772858810145659115098069 eV	
Electron 0,0027212042 It is against the direction of motion		3,6890835634754294760932629961125e-6 1,885117746238364416623259019 eV Lambda_{ad} (v/c= 0,0027212042)=hc/ E_{k,ad} = = 6576,99993841987869470e-10m	

Electron average speed 0,0027191751	3,7104012971124629780821510682521e-6 1,8960110852742780772396666918109 eV Lambda _{id} (v/c= 0,0027191751)=hc/ E _{k, id} = =6539,2124535655764172783570e-10m	3,6835939329504166639190831578912e-6 1,88231255092496679241598777242 eV Lambda _{id} (v/c= 0,0027191751)=hc/ E _{k, ad} = =6586,8e-10m	
Proton 0,075	<i>Down quark / p:</i> 0,0031195396113692225967210545118109 <i>Down quark:</i> 2,92697671 MeV	<i>Up quark / p:</i> 0,002553219719161004341317048303269 <i>Up quark:</i> 2,4MeV	
Proton 0,081622	<i>Down quark / p:</i> 0,0037302615346601410853636615401917 <i>Down quark:</i> 3,5 MeV	<i>Up quark / p:</i> 0,002999174044442449432232831693702 <i>Up quark:</i> 2,81404106871 MeV	
Proton 0,08878	<i>Down quark / p:</i> 0,0044589013511482922312132108807756 <i>Down quark:</i> 4,18366235 MeV	<i>Up quark / p:</i> 0,003517103732679561594771452309324 <i>Up quark:</i> 3,3 MeV	
Proton 0,094686	<i>Down quark / p:</i> 0,0051156918494022662432562213837619 <i>Down quark:</i> 4,8MeV	<i>Up quark / p:</i> 0,003971527848360625619647345216845 <i>Up quark:</i> 3,72637 MeV	
0,1	0,0057505954532848098836101302717983	0,004401088895233950953043032370909	
0,2	0,026856448685790244233704909690165	0,015654890127287959545051358487848	
0,3	0,071896484632696192515932717330244	0,031595033698260282804726756111724	
		π0 134,9766 /α: 0,036212199325336157637665009906532	
		π+ 139,57018 /α: 0,037444588010314721825837072591519	
		π0 134,9766 /He-3: 0,048062272156462624517553622136065	
		π+ 139,57018 /He-3: 0,049697947467090419133296972965555	γ + γ or π0 + π0 + π0 or π+ + π0 + π-
Neutron	π0/n0 :	/n0 : 0,048459799260954729063079397363521	γ + γ

0,38866927969772030189	0,1436586140042206738902565846 pi zero π^0 134,97666 MeV/c ²	45,5311496205996084978402729 MeV/c ² f =1,1009383475444403265690041 e+22 Hz ...gamma rays $\gamma + \gamma$	f=1,10 e+22 Hz
	η 547,853/ α : 0,14698075101153377674550765593683		
0,4	0,155841042900675983461152570363	0,050757950906927216218879124502706	
	η 547,853 /He-3: 0,19507870243978969858342338263158		$\gamma + \gamma$ or $\pi^0 + \pi^0 + \pi^0$ or $\pi^+ + \pi^0 + \pi^-$
	ρ (770)/ α : 0,2065794625180130584190300957946		
	ω (782)/ α : 0,20979888271309897621257342196283		
	ρ (770) /He-3: 0,27418048432451418155825742421108		
	ω (782)/He-3: 0,27845342693736375321890559186113		
		π^0 134,9766 /D: 0,071963997981952415266523825853126	
Deuteron	η 547,853 /D: 0,29209279376133771750815235800215		$\gamma + \gamma$ or $\pi^0 + \pi^0 + \pi^0$ or $\pi^+ + \pi^0 + \pi^-$
	$\Lambda = 1115,683$ Λ / α : 0,29932103179283683513781656411222		
Deuteron		π^0 /D: 0,071963997981952415266523825853	$\gamma + \gamma$ or $\pi^0 + \pi^0 + \pi^0$ or $\pi^+ + \pi^0 + \pi^-$

	Λ^0/α : 0,29932103179283683513781656411222		
0,5	0,30685281944005469058276787854182	0,072131774774831048644679782131016	
	$h_1(1170)/\alpha$: 0,31389346902087698487047430140218		
	$K^*(892)/\text{He-3}$: 0,31762206755515149344151379531985		
		$\pi^+ 139,57018 /D$: 0,074413106804147795619266438394577	
	$\Sigma^+ = 1189,37$ Σ^+/α : 0,31909014978577817050888548705873		
	$\Sigma^- = 1197,449$ Σ^-/α : 0,32125762443211976466338853140149		
0,51	0,3274664386531474870726817611911	0,074361306455972033607935509321046	
	$\Delta(1232)/\alpha$: 0,33052714002882089347044815327136		$p^+ + \pi^+$
	$f_0, a_0(980)/\text{He-3}$: 0,34895698004938168561960035808683		
0,52	0,34936415825313289436152414671984	0,07660507170029028338263562373576	
	$\Xi^0 = 1314,86$ Ξ^0/α : 0,35275723647588915583486482046297		
	$f_0(1370)/\alpha$: 0,36755047227230894809619640420598		
	$\Sigma(1385)/\alpha$: 0,37157474751616634533812556191626		
0,53	0,3726369901900523251679464838077	0,078862506646174160363519306532456	

	$K_1, \pi_1(1400) / \alpha:$ 0,37559902276002374258005471962654		
	$\eta(1405)/\alpha:$ 0,37694044784130954166069777219664		
	$\eta(1475)/\alpha:$ 0,39572039897931072878970050817797		
	$\Lambda = 1115,683 / \text{He-3}:$ 0,39727078609432072158891080235856		
0,54	0,39738425397926450175321943520399	0,081133065776187141197896182848407	
	$f_0(1500)/\alpha:$ 0,40242752438573972419291577102844		
	$N, \Lambda(1520) / \alpha:$ 0,40779322471088292051548798130882		
	$\Sigma^+ / \text{He-3}:$ 0,42350914628707458716875926316096		
0,55	0,42371452600445061157748911992473	0,083416221253735897655231070980462	
	$\Delta, \Lambda, \pi_1(1600) / \alpha:$ 0,42925602601145570580577682243034		
	$\Delta(1620)/\alpha:$ 0,43462172633659890212834903271071		
	$\Delta(1232) / \text{He-3}:$ 0,43868877491922269049321187873773		$p+ + \pi+$
	$b_1(1235) / \text{He-3}:$ 0,43975701057243508340837392065025		
	$N, K^*, \phi(1680)/\alpha:$ 0,45071882731202849109606566355185		
0,56	0,45174672065744252213315218424003	0,08571146228708670388823965306111	
	$K_1, f_2(1270) / \text{He-3}:$ 0,4522197598599130007519310762962		

	$\Lambda, \Xi, \rho_3 (1690)/\alpha:$ 0,45340167747460008925735176869204		
0,57	0,48161132505430826473918518537247	0,088018294519452358178271244232199	
	$\Lambda, \pi (1800)/\alpha:$ 0,48291302926288766903149892523413		
	$\Lambda, \eta(1405) /He-3:$ 0,50029036425447068193422296235919		
	$N(1440) /He-3:$ 0,51275311354194859927778011800514		
0,58	0,51345181324765789026279957340753	0,090336239443938726693435259899973	
	$\Sigma (1915)/\alpha:$ 0,51376580613246104788628913434631		
	$\Delta, \Xi, f_2 (1950)/\alpha:$ 0,52315578170146164145079050233697		
	$\eta(1475) /He-3:$ 0,5252158628294265166213372736511		
Neutron 0,5836009497521116689581	K⁺/n0 : 0,5254312381545198230873 Kaon K⁺ 493.677 MeV/c ²	/n0 : 0,09117355136082414012969482667 85,6635122670815933982547583 MeV/c ² f =2,07133460116943425312851e+22 Hz ...gamma rays $\gamma + \gamma$	$\mu^+ + \nu_\mu$ or $\pi^+ + \pi^0$ or $\pi^0 + e^+ + \nu_e$
	K⁺ 493,677/n0 : 0,52543123827195769659362650546708		
	K⁺ 493,677/p+ : 0,52615550266537515495798965751134		
	D_s⁺ 1968,47/\alpha: 0,5281110059517313832546859385309		
	K0, K0S, K0L 497,614 /n0 : 0,52962147355753247008214046814313		

Neutron 0,58484084562020497175	K0/n0 : 0,52962147343915804715590191755369 K0 497,614 MeV/c ²	?/n0 0,091462174250863105453354510569334 85,934692341921117094216144 MeV/c ² f = 2,0778917064911439211823414e+22 Hz ...gamma rays $\gamma + \gamma$: $\pi^\pm + e^\mp + \nu e$ or $\pi^\pm + \mu^\mp + \nu \mu$ or $\pi^0 + \pi^0 + \pi^0$ or $\pi^+ + \pi^0 + \pi^-$
	K0, K0S, K0L 497,614/p+ : 0,53035151385081337060317791882718		
	f ₀ (500) /n0 : 0,53216094558988741281609889205602		
	a ₄ (2040)/ α : 0,54730143316460602490236544859868		
0,59	0,54742627096011887485517070757112	0,092664833842203050585492472872163	
	K [*] ₄ (2045)/ α : 0,54864285824589182398300850116877		
	ϕ (2170)/ α : 0,58217848527803680099908481542114		
Neutron 0,599835288	η /n0: 0,58309194091818769891623293001713 Eta meson η 547,853 MeV/c ²	: γ /n0 : 0,094965026195762925653475196132505 89,22585075434455074110 MeV/c ² f=2,15747156630740041065976e+22Hz... gamma rays $\gamma + \gamma$	$\gamma + \gamma$ or $\pi^0 + \pi^0 + \pi^0$ or $\pi^+ + \pi^0 + \pi^-$
0,6	0,58370926812584493481647278823199	0,095003629245735553650937031148342	
	η 547,853 /n0 : 0,58309194104851317754707645261914		
	D _{s0} [*] (2317) ⁺ / α : 0,62161638266783929396999056098193		
0,61	0,62249402424411916197685233322168	0,097352191418731876323327634828747	
	Σ (1750) /He-3: 0,62313746437389586717785778229792		

	$\Lambda(1830) / \text{He-3}$: 0,65162374845955967824884556663154		
	$\Lambda(1232)/D$: 0,65685196925811863395845912144069		$p+ + \pi+$
	$\Xi_c^0 = 2470,88$ Ξ_c^0/α : 0,66290008096949104647586114687917		
0,62	0,66399492110671545402185559134572	0,099710099861576657579514110396835	
	$D^0 1864,83 / \text{He-3}$: 0,66402596439335555999387687323579		
	$\Lambda_c (2625)^+ / \alpha$: 0,70424816767504451733760259929977		
	Ξ^- / D : 0,70468166906505517831918425762936		
0,63	0,70845042935883577903481546436542	0,10207694733400838934183289233484	
	$\Xi_c(2645)/\alpha$: 0,70961386800018771366017480958015		
	$\Xi_c(2815) / \alpha$: 0,75522232076390488240203859696337		
0,64	0,75612653024579641136674958517045	0,10445233939708266442134226756064	
	$f_1, \omega (1420) / D$: 0,75708587365789647745212009127092		
	$f_0 (1500) / D$: 0,79973859893439768744942263162422		
0,65	0,8073207326441794545272720244435	0,10683589397309530262802584480572	
	$N, \Omega, \Sigma (2250) / \text{He-3}$: 0,80117673990929468637153143438304		
	$\Delta, D_1(2420)^0 / \text{He-3}$: 0,86171009359133028489738047609198		

0,66	0,8623668092163053157484308887861	0,10922724092266873232660095345311	
	$\Delta(1620) /D:$ 0,86371768684914950244537644215415		
	$\Xi_c^+ /He-3:$ 0,91711591613794639743045171662087		
	$\Xi_c^0 /He-3:$ 0,91793489680540923199874261542046		
0,67	0,92164040578141917045150893582196	0,11162602163824457754712116078922	
	$\Lambda_c(2595)^+ /He-3:$ 0,92402384002871987161516625432177		
	$\eta_c(2S) 3638,9/\alpha:$ 0,97626234565817885491040079946359		
0,68	0,98556571681163517905017769792215	0,1140318886532627948115495306096	
	$\Omega_c(2770)^0 /He-3:$ 0,98633758646610945833295203255156		
	938,272046 /n0 : 0,99862347843983667946521545837548		
Electron 0,6821555671006273161671553	e/e: 1,00000000000000000000000002540294 0,51099890997249598396127388955714 MeV Electron	/e: 0,11455138503597051915497991380189 58,53563288922062294904123370199 keV	
	939,565378 /p+ : 1,0013784189836132025188779843495		
	$\Delta(1905) /D:$ 1,0156680206466850630607667421628		
	$\Delta(1910) /D:$ 1,0183338159764663886855981509348		
Neutron 0,68499502942048864	$\eta'(958)/n0:$ 1,0193862207063241677384071561382	$\gamma ? /n0 :$ 0,115236174677131574767638556 108,27192004399275268448921 MeV/c²	$\pi+ + \pi- + \eta$ or $(\rho0 + \gamma) / (\pi+ + \pi- + \gamma)$ or $\pi0 + \pi0 + \eta$

	Eta prime meson $\eta'(958)$ 957,78 MeV/c ²	$f = 2,618003492816778961296378e+22\text{Hz}$...gamma rays $\gamma + \gamma$	
	$\eta'(958)/n0$: 1,0196203717502242829556454771793		
	$\Sigma(1915)/D$: 1,0209996113062477143104295597069		
	$\chi_{c2}(2P)3927,2/\alpha$: 1,0536089158451180299002792106553		
0,69	1,0546234701099581036996330280769	0,11644450526634305081655410393942	
	$\Xi_c(2980)/\text{He-3}$: 1,0611140821909769623942949664273		
	$D_s^{*+} 2112,3/D$: 1,1261918950194188234662769498532		
0,7	1,1293605290073973407105871155715	0,11886354517981745505507257495347	
	$X(4260)/\alpha$: 1,1428941692555008167078807897208		
	$\Omega(2250)/D$: 1,1996078984015965311741339474363		
0,71	1,210401506067348176388668433338	0,1212886921519953753483303180016	
	$\chi_{c0}(1P) 3414,75/\text{He-3}$: 1,2159192322690062356831942069153		
	$D_{s0}^*(2317)^+/D$: 1,2353295558206662945468748249822		
Proton 0,713	c quark / p: 1,236047494268773255524413529431 c quark: 1160 MeV 1.16–1.34 GeV	s quark / p: 0,12201738104659464824870350196726 s quark=114,485493763640 MeV	
	$h_1(1170)/n0$: 1,2452566126803365459896714074111		

	$\eta_c(2S)$ 3638,9 /He-3: 1,2957342394915255263277181051451		
0,72	1,2984628956156839844752626484194	0,12371963966257097659690524224231	
	$\Sigma_c(2455)$ /D: 1,3089055069226308817922217070916		
	$\Lambda(1232)$ /p+ : 1,3130520143408386270947264264974		p+ + π^+
	$b_1(1235)$ /n0 : 1,3144375356070219096557642633784		
	$K_1, f_2(1270)$ /p+ : 1,3535519953026502081252455857563		
Proton 0,72585	c quark / p: 1,3535582771630143437838209404184 c quark: 1270 MeV 1.16–1.34 GeV	s quark / p: 0,12514431408438967945446850497659 s quark: 117,41941 MeV	
	$f_1(1285)$ /n0 : 1,367653630166010650937374152584		
	X (3915) /He-3: 1,3940475274421727542864646958265		
0,73	1,3943703837199414098534565051026	0,12615609059061243438884695884105	
	$\chi_{c2}(2P)$ 3927,2 /He-3: 1,3983916857652364854747903329374		
	$B^+ 5279,15/\alpha$: 1,4163168435739852433153541950832		
	$B^0 5279,50/\alpha$: 1,4164107433296752492509992087631		
Proton 0,73333	c quark / p: 1,4281572732698825869678018468163 c quark: 1340 MeV 1.16–1.34 GeV	s quark / p: 0,12696860023316592749751861919307 s quark= 119,1311MeV	

	B[*] 5325,1/α: 1,4286445400710017368664638482024		
	Λ, η(1405) /p+ : 1,497433506614349245996826809439		
0,74	1,4990801981872368312808904998086	0,12859775690459857949999636643136	
	K[*] (1410)/n0 : 1,500693866563482504141398875598		
	Ξ_c(2815) /D: 1,5008427706668863267800831386814		
	K[*] (1410) /p+ : 1,502762451477745506658737225131		
Alpha particle 0,740795108978806110189	Λ0b5620,2/α: 1,5078154480367796791747546093745 bottom Lambda Λ0b 5620,2MeV/c²	/α: 0,12879211144543390135241844828114 480,057042583086248078468247 MeV/c²	See Λ0b decay modes
	Λ_b⁰ = 5620,2 Λ_b⁰/α: 1,5078154483684895986060168108894		
	f₀ (1500) /p+ : 1,5986834590188781985731247075861		
0,75	1,6137056388801093811655357570836	0,1310443593639941148423170719554	
	N(1520) /n0 : 1,6177692745932577349609406318503		
	J/ψ (1S) 3096,916 /D: 1,6511488419050127657500774257594		
Alpha particle 0,753304289775682	Ω-b /α: 1,6539771248615256969702790233076 bottom Omega Ω-b 6165 MeV/c²	K₊ /α: 0,13185382624286629129216216386684 491,46921476034714977734838317031 MeV/c² 2,20778523965285 MeV/c² less than K+ mezón 493,677 MeV/c²	(Ω- +J/ψ seen)
		K₊ 493,677/α:	μ+ + νμ or

		0,13244614197078588654692405272934	$\pi^+ + \pi^0$ or $\pi^0 + e^+ + \nu_e$
	X (4660) /He-3: 1,6593260479899169948850384374333		
	$\Delta(1620)/n^0$: 1,7242014637112352175241604102615		
	$\Delta(1620)/p^+$: 1,726578135740388454458974684193		
0,76	1,739550311026520918277625358595	0,13349562723187859551307097261093	
		K ⁰ , K ^{0S} , K ^{0L} 497,614/ α : 0,13350238007979032474302239232303	$\pi^\pm + e^\mp + \nu_e$ or $\pi^\pm + \mu^\mp + \nu_\mu$ or $\pi^0 + \pi^0 + \pi^0$ or $\pi^+ + \pi^0 + \pi^-$
	$\eta_2(1645) /n^0$: 1,7508095109907295881649653548643		
	$\Sigma(1750) /n^0$: 1,8625633095646059448563461221961		
	$\Sigma(1750) /p^+$: 1,8651307021886912316686454921838		
		$f_0(500)/\alpha$: 0,13414250812857990806430525700948	
	$\chi_{c1}(1P) 3510,66 /D$: 1,8717402064900217236141267039586		
0,77	1,8781501168975800619012047050502	0,13595129799816715250638614760118	
	$h_c(1P) 3525,41 /D$: 1,8796043027128766342073793598362		
	$\Delta(1905) /p^+$: 2,0303279929539753121878683786344		
0,78	2,0313268128247699399886473355091	0,13841111711298254374400857298402	

	$\Delta(1910) /n0 :$ 2,032854812153369916957497767654		
	$f_4(2050) /n0 :$ 2,1818598769185383925460054574297		
	$f_4(2050)/p+ :$ 2,1848673939924668713832704337011		
0,79	2,2012570136400935332265198329017	0,14087483772975860020886062679793	
	$\psi(4160) /D:$ 2,2179417143780629198597320983712		
	$N(2220) /p+ :$ 2,3660515193479397338882245672275		
	$X(4660) /D:$ 2,4845212473561954823428729755792		
0,8	2,3905620875658996253992406667738	0,14334222045767456374528669617442	
	$N(2250) /n0 :$ 2,3947242551544933576724450142521		
	$Y(1S) 9460,30/\alpha:$ 2,5380567392976090085214940457736		
	$D_0^*(2400)^0 /n0 :$ 2,5543725388314595815172746818689		
		$\pi_0 134,9766 /n0 :$ 0,14365855017701599472942690742698	
		$\pi_0 134,9766 /p+ :$ 0,14385657184973834337168348293731	
	$D_0^*(2400)^0 /p+ :$ 2,5578935344302051177169995321378		
	$\Delta, D_1(2420)^0 /n0 :$ 2,5756589766550550780299186375512		

	$\Lambda, D_1(2420)^0 / p+$: 2,5792093138837901603646411949056		
0,81	2,602426687915191197236202417256	0,14581303312303824620641904639135	
Neutron 0,8103668245118	$\Sigma+c/n0$: 2,6106751662913639364421254497813 2452,9 MeV/c ²	($\pi0/n0$: 0,1436585501770159947294269) ($\pi+$ /n0 : 0,1485475979299) 0,14590373087681143063739535698886 137,08609408352138674567554995853 MeV/c ² pion pi $\pi0$	$\Lambda+c + \pi0$
	$\Sigma_c(2455) /n0$: 2,6129102428463471969270455599951		
Proton 0,8105263656822	$\Sigma+c/ p+$: 2,6142737704998220827257144593942 2452,9 MeV/c ²	0,145943178944838051921943801563 136,93440513896538769387243389314 MeV/c ² pion zero $\pi0$	$\Lambda+c + \pi0$
	$\Sigma_c(2455) /p+$: 2,6165119279275639849980141047493		
	$D_{s1}, D_2^+, D_2^*(2460)^0 /n0$: 2,6182318523022460710552065489156		
	$\Xi_c(2645)/p+$: 2,8190118327366218901506099010436		
	$\Upsilon(4S)10579,4 /\alpha$: 2,8382945009909965587510220720122		
	$B^* 5325,1/D$: 2,8391253421237074169579469704414		
0,82	2,8407571274636288797272952414901	0,1482870505392534330895399465485	
	$B_s^0 5366,3 /D$: 2,8610914956411055401065577787234		
Neutron 0,821091179644426	<u>$\Omega0c /n0$</u> : 2,8685603604665840766027218852177 Charmed Omega $\Omega0c$ 2695,2 MeV/c ²	<u>$\pi+$ /n0</u> : 0,14855719485567454693134509431545 139,57919697038852205221964844453	See $\Omega0c$ decay modes

		MeV/c ² pion pi +-, pi +, pi - $\pi^- = 139,57018 \pm 0,00035 \text{ MeV}/c^2$	
	$\Omega_c^0 / n0 :$ 2,8685603611077291100438994677388		
	$\Omega_c^0 = 2695,2$ $\Omega_c^0 / p+ :$ 2,8725144391651203471961904745908		
Proton 0,8212451756	$\Omega c / p+ :$ 2,8725144391651203471961904745908 2,872514499307888530047789439106 2,695.2±1.7 MeV/c2 6,9±1.2×10 ⁻¹⁴ s	Proton v/c= 0,82188 $\pi^+ / p+ :$ 0,14875235875885830238195117240016 139,57017509117216095767602139546.... MeV/c2 139,57 = pi- +	See Ωc decay modes
	$B_s^* 5415,4/D:$ 2,8872696057795581577424022128652		
Proton 0,82188 Δ particles $\Delta(1232) P_{33}$ **** $\Delta(2750) I_{3,13}$ **	$/p+ :$ 2,8888948805641110396466171019284 2710,5692149 MeV/c ² Nucleons p P ₁₁ **** N P ₁₁ **** N(2700) K _{1,13} ** $\Delta(2750) I_{3,13}$ **	$\pi^+ / p+ :$ 0,14875235875885830238195117240016 139,57017509117216095767602139546.... MeV/c ² 139,57 = pi- +	
	$\Upsilon(10860)/\alpha:$ 2,9135752765527556031567101822459		
	$\Omega_c(2770)^0 / n0 :$ 2,9481716385679762670011878619904		
	$\Omega_c(2770)^0 / p+ :$ 2,9522354543215284066983702933424		
	$\Upsilon(11020)/\alpha:$		

	2,9565008791539011737372878644889		
		π^+ 139,57018 /n0 :	
		0,14854759792990158477295445852412	
		π^+ 139,57018 /p+ :	
		0,14875235875885830238195117240016	
	$\Xi_c(2790)$ /n0 :		
	2,9694580763915717635138318176726		
	Σ_b^+ /D:		
	3,1077841954590694134284563464917		
	$B_{s1}(5830)^0$ /D:		
	3,1083173545250256785534226282461		
0,83	3,1103960992445953004488458261515	0,15076405428502356118168968234553	
	Σ_b^- /D:		
	3,1117295725471457753532068314744		
	$J/\psi(1S)$ 3096,916/p+ :		
	3,3006589221139387968081913846126		
	B_c^+ 6277/D:		
	3,3466394570074761894133505724701		
	$\Upsilon(1S)$ 9460,30 /He-3:		
	3,3686099166950668984358217016417		
0,84	3,417418536251689869632945576464	0,15324383249045946841377063464208	
	$\chi_{b0}(1P)$ 9859,44 /He-3:		
	3,5107351095694650678217475046282		
	$\Upsilon(4S)$ 10579,4 /He-3:		
	3,7670974231983965355551020697386		
0,85	3,7695466817807853646266883274467	0,15572617963077399147341263542945	
	$\chi_{c2}(1P)$ 3556,20 /n0 :		
	3,7849415094135152349132217598593		
	X (3915)/p+ :		

	4,1725638280392720982758554867998		
0,86	4,1767442864843101036294590983898	0,15821089632726041634006737570487	
Proton 0,8665	<i>bottom quark</i> /p 4,476313841592169302436394 4,2 GeV <i>Bottom quark</i>	/p 0,159827140990503087217669575 149,96133334595438795425311140944 MeV	
	X (4260) /n0 : 4,5340112564258407571931625603173		
	X (4360) /p+ : 4,6468399208815392971858824833837		
0,87	4,6520868637811376757098122245043	0,16069778915526530975143111534653	
	Y(1S) 9460,30/D: 5,043844711666054961718515281303		
0,88	5,2130697971332422755270599038035	0,16318667045887911421517668417086	
	Y(11020) /D: 5,8754129068380416771284249336659		
0,89	5,8836341777193700851168697595055	0,16567735817208011178420607394256	
	B ⁺ _c 6277/p+ : 6,6899573815076656349623358596788		
0,9	6,6974149070059543159820085453156	0,16816967564607898651735176667717	
		K ⁺ 493,677 /He-3: 0,17578779085697816572615045508085	
		K ₀ , K _{0S} , K _{0L} 497,614 /He-3: 0,17718967211254389602848144141737	
		f ₀ (500) /He-3: 0,17803927553539881919367365208512	
0,99	94,394829814011908631964017090632	0,19064720155047137913293235234825	
0,9928305	Higgs Boson /p:	0,191354813279005033975005068774	

	133,54335827671029218747501724036 Higgs Boson 125300 MeV/c²	179,5428721672400220720275MeV/c²	
Proton 0,994637	<i>Top quark /p:</i> 180,22492157457995929571290469898 <i>Top quark: 169 100MeV</i>	<i>/p:</i> 0,19180643378644112290601029593852 179,966608779270804265884148 MeV	
Proton 0,994766	<i>Top quark /p:</i> 184,80781431716241834344540316264 <i>Top quark: 173 400MeV</i>	0,19183868355887822897300444041866 179,99686783818157713891779163 MeV	
Electron 0,995308032046	Muon/e: 206,76828223744685656745189701043 Muon 105,658366838 MeV = = kinetic energy of elektron in direction of motion of electron	Muon neutrino /e: 0,19197419073094806197627099443559 Muon neutrino 98,098602206366501715601463117 keV = kinetic energy of elektron against direction of motion of electron < 170 keV	
Electron 0,996425584251459554502	π^-/e^- : 273,13204749023558573115849192 139,5701835 MeV/c ² pi minus π^- 139,57 MeV/c²	$\nu\mu/e^-$: 0,19225357757678994895712344707072 98,24137206705239513171169380 keV/c ² = kinetic energy of elektron against direction of motion of electron < 170 keV Muon neutrino $\nu\mu$	$\mu^+ + \nu\mu$
0,999	992,09224472101786294794602563595	0,1928971805807942771307765797681	
Electron 0,99971316674	Tauon/e: 3477,1889439759399848663533204024 Tauon 1776,84±0.17 MeV = kinetic energy of elektron in direction of motion of electron	neutrino /e: 0,1930754722354370554950579271201 Muon neutrino 98,098832330615474551604782917 keV = kinetic energy of elektron against direction of motion of electron < 170 keV Tauon neutrino $\nu\tau$ < 15.5 MeV	

0.9999	9989,7896596280238172639280341813	0,19312218055996614431315920999989	
0.99999	99987,487074535029771579910042727	0,19314468055994533025072170572902	
Electron 0,99999364465781184	W+ BOSON/e: 157334,97358013414086695519224486 W+ BOSON = 80 398±0,25 MeV	neutrino/e: 0,19314559172439827476506281953288 Muon neutrino 98,6971868371602593582305116066 keV < 170 keV Tauon neutrino ν_τ < 15.5 MeV	0,99999364465781184
Electron 0,999994396590953	BOSON Z/e: 178449,69572422000527027492336062 BOSON Z = 91 187,6 MeV = 91, 187,6 GeV	neutrino/e: 0,19314577970768356308259999253441 Muon neutrino 98,69728289641413473723244731 keV < 170 keV Tauon neutrino ν_τ < 15.5 MeV	
0.999999	999985,18448944203572589589205127	0,19314693055994530943806547041602	
0.9999999	9999982,8819043490416802118740598	0,19314715555994530941725295479213	
0.99999999	99999980,579319256047634527856068	0,19314717805994530941723214229151	

Conclusion:

All movements in physics are based on principle of **action - reaction** and on velocity of stable particles (**e-, p+,n0, D, He-3, α**).
Action creates unstable particles (leptons, baryons, mesons) in direction of motion of stable particles (e-, p+,n0, D, He-3, alfa).
Reaction creates unstable particles (neutrinos, mesons and baryons) against direction of motion of stable particles (e-, p+,n0, D, He-3, alfa).
Accompanying activity of reaction on movement of stable particles in environment is wave.

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