

Einige Elementarteilchen und deren Eigenschaften

		$I^G(J^{PC})$	mc <sup>2</sup>	$\tau(\text{sec})/\Gamma$	Zerfälle	$L$	$B$	$S$	$C_q$	$B_q$
(Eich)bosonen	$\gamma$	$0, 1(1^{--})$	0	–	–					
	$W^\pm$	$J = 1$	80.43 GeV	2.12 GeV	$\ell\nu, \text{Hadronen} : q_1\bar{q}_2, \dots$					
	$Z^0$	$J = 1$	91.188 GeV	2.495 GeV	$\ell^+\ell^-, \text{Hadronen} : q\bar{q}, \dots$					
Leptonen ( $\ell$ )	$\nu_e$	$J = \frac{1}{2}$	< 2.2 eV	–	–	$L_e = 1$	0	0	0	0
	$e^-$	$J = \frac{1}{2}$	0.511 MeV	–	–	$L_e = 1$	0	0	0	0
	$\nu_\mu$	$J = \frac{1}{2}$	< 0.19 MeV	–	–	$L_\mu = 1$	0	0	0	0
	$\mu^-$	$J = \frac{1}{2}$	105.658 MeV	$2.197 \cdot 10^{-6}$ s	$e^-\bar{\nu}_e\nu_\mu$	$L_\mu = 1$	0	0	0	0
	$\nu_\tau$	$J = \frac{1}{2}$	< 18.2 MeV	–	–	$L_\tau = 1$	0	0	0	0
	$\tau^-$	$J = \frac{1}{2}$	1777 MeV	$290.6 \cdot 10^{-15}$ s	$\ell^-\bar{\nu}_\ell\nu_\tau, \rho^-\nu_\tau, \pi^-\nu_\tau, \dots$	$L_\tau = 1$	0	0	0	0
Mesonen	$\pi^\pm$	$1^-(0^-)$	139.6 MeV	$2.6 \cdot 10^{-8}$ s	$\mu^\pm\nu_\mu(99.99\%), e^\pm\nu_e$	0	0	0	0	0
	$\pi^0$	$1^-(0^+)$	134.977 MeV	$8.4 \cdot 10^{-17}$ s	$\gamma\gamma, \gamma e^+e^-$	0	0	0	0	0
	$\eta$	$0^+(0^+)$	547.8 MeV	1.29 keV	$\gamma\gamma, 3\pi^0, \pi^+\pi^-\pi^0, \dots$	0	0	0	0	0
	$\eta'$	$0^+(0^+)$	957.8 MeV	202 keV	$\pi^+\pi^-\eta, \rho\gamma, \pi^0\pi^0\eta, \dots$	0	0	0	0	0
	$\rho^\pm$	$1^+(1^-)$	776 MeV	150 MeV	$\pi^\pm\pi^0$	0	0	0	0	0
	$\rho^0$	$1^+(1^{--})$	776 MeV	150 MeV	$\pi^+\pi^-$	0	0	0	0	0
	$\omega$	$0^-(1^{--})$	782.6 MeV	8.49 MeV	$\pi^+\pi^-\pi^0, \pi^0\gamma, \pi^+\pi^-$	0	0	0	0	0
	$\phi$	$0^-(1^{--})$	1019.42 MeV	4.46 MeV	$K^+K^-, K_L^0K_S^0, \pi^+\pi^-\pi^0, \dots$	0	0	0	0	0
	$J/\psi$	$0^-(1^{--})$	3096.91 MeV	91 keV	$\ell^+\ell^-, \text{Hadronen}, \dots$	0	0	0	0	0
	$\psi(2S)$	$0^-(1^{--})$	3686.09 MeV	281 keV	$J/\psi\pi\pi, \text{Hadronen}, \dots$	0	0	0	0	0
	$\psi(3770)$	$0^-(1^{--})$	37770 MeV	23.6 MeV	$D^+D^-, D^0\bar{D}^0$	0	0	0	0	0
	$\Upsilon(1S)$	$0^-(1^{--})$	9460.3 MeV	53 keV	$\ell^+\ell^-, \text{Hadronen}, \dots$	0	0	0	0	0
	$\Upsilon(2S)$	$0^-(1^{--})$	10023.26 MeV	43 keV	$\Upsilon(1S)\pi\pi, \text{Hadronen}, \dots$	0	0	0	0	0
	$\Upsilon(4S)$	$0^-(1^{--})$	10580.0 MeV	20 MeV	$B^+B^-, B^0\bar{B}^0$	0	0	0	0	0
	$K^\pm$	$\frac{1}{2}(0^-)$	493.7 MeV	$1.238 \cdot 10^{-8}$ s	$\mu^\pm\nu_\mu, \pi^\pm\pi^0, \dots$	0	0	$\pm 1$	0	0
	$K^0/\bar{K}^0$	$\frac{1}{2}(0^-)$	497.65 MeV		$\pi^-\ell^+\nu_\ell/\pi^+\ell^-\bar{\nu}_\ell$	0	0	$\pm 1$	0	0
	$K_S^0$	$\frac{1}{2}(0^-)$	497.65 MeV	$0.8958 \cdot 10^{-10}$ s	$\pi^+\pi^-, \pi^0\pi^0$	0	0		0	0
	$K_L^0$	$\frac{1}{2}(0^-)$	497.65 MeV	$5.18 \cdot 10^{-8}$ s	$\pi^+\pi^-\pi^0, 3\pi^0$	0	0		0	0
	$K^{*\pm}$	$\frac{1}{2}(1^-)$	891.7 MeV	50.8 MeV	$K\pi$	0	0	$\pm 1$	0	0
	$\bar{K}^{*0}$	$\frac{1}{2}(1^-)$	892 MeV	50 MeV	$K\pi$	0	0	-1	0	0
	$K^{*0}$	$\frac{1}{2}(1^-)$	896.1 MeV	50.7 MeV	$K\pi$	0	0	+1	0	0
	$D^+$	$\frac{1}{2}(0^-)$	1869.4 MeV	$1.04 \cdot 10^{-12}$ s	$\bar{K}^0\ell^+\nu_\ell, K^-\pi^+\pi^+, \dots$	0	0	0	+1	0
	$D^-$	$\frac{1}{2}(0^-)$	1869.4 MeV	$1.04 \cdot 10^{-12}$ s	$K^0\ell^-\bar{\nu}_\ell, K^+\pi^-\pi^-, \dots$	0	0	0	-1	0
	$D^0$	$\frac{1}{2}(0^-)$	1864.6 MeV	$0.413 \cdot 10^{-12}$ s	$K^-\ell^+\nu_\ell, K^-\pi^+, \dots$	0	0	0	+1	0
	$\bar{D}^0$	$\frac{1}{2}(0^-)$	1864.6 MeV	$0.413 \cdot 10^{-12}$ s	$K^+\ell^-\bar{\nu}_\ell, K^+\pi^-, \dots$	0	0	0	-1	0
	$D^{*+}$	$\frac{1}{2}(1^-)$	2010.0 MeV	< 131 keV	$D^0\pi^+, D^+\pi^0, D^+\gamma$	0	0	0	+1	0
	$D^{*0}$	$\frac{1}{2}(1^-)$	2006.7 MeV	< 2.1 MeV	$D^0\pi^0, D^0\gamma$	0	0	0	+1	0
$D_S^\pm$	$0(0^-)$	1968.3 MeV	$0.49 \cdot 10^{-12}$ s	$\phi\pi^\pm, K^*K$	0	0	$\pm 1$	$\pm 1$	0	
$B^+$	$\frac{1}{2}(0^-)$	5279.0 MeV	$1.671 \cdot 10^{-12}$ s	$\bar{D}^{*0}\ell^+\nu_\ell, \bar{D}^{*0}\rho^+, J/\psi X, \dots$	0	0	0	0	+1	
$B^-$	$\frac{1}{2}(0^-)$	5279.0 MeV	$1.671 \cdot 10^{-12}$ s	$D^{*0}\ell^+\nu_\ell, D^{*0}\rho^+, J/\psi X, \dots$	0	0	0	0	-1	
$\bar{B}^0, B^0$	$\frac{1}{2}(0^-)$	5279.4 MeV	$1.536 \cdot 10^{-12}$ s	$D^{*\pm}\ell^\mp\nu_\ell, J/\psi K_S^0, \dots$	0	0	0	0	$\mp 1$	
Baryonen	$p$	$\frac{1}{2}(\frac{1}{2}^+)$	938.27 MeV	$> 10^{31}$ a	–	0	1	0	0	0
	$n$	$\frac{1}{2}(\frac{1}{2}^+)$	939.56 MeV	885.7 s	$pe^-\bar{\nu}_e$	0	1	0	0	0
	$\Lambda$	$0(\frac{1}{2}^+)$	1115.68 MeV	$2.63 \cdot 10^{-10}$ s	$p\pi^-, n\pi^0$	0	1	-1	0	0
	$\Sigma^+$	$1(\frac{1}{2}^+)$	1189.37 MeV	$0.802 \cdot 10^{-10}$ s	$p\pi^0, n\pi^+$	0	1	-1	0	0
	$\Sigma^0$	$1(\frac{1}{2}^+)$	1192.64 MeV	$7.4 \cdot 10^{-20}$ s	$\Lambda\gamma$	0	1	-1	0	0
	$\Sigma^-$	$1(\frac{1}{2}^+)$	1197.45 MeV	$1.48 \cdot 10^{-10}$ s	$n\pi^-$	0	1	-1	0	0
	$\Xi^0$	$\frac{1}{2}(\frac{1}{2}^+)$	1314.8 MeV	$2.90 \cdot 10^{-10}$ s	$\Lambda\pi^0$	0	1	-2	0	0
	$\Xi^-$	$\frac{1}{2}(\frac{1}{2}^+)$	1321.3 MeV	$1.64 \cdot 10^{-10}$ s	$\Lambda\pi^0-$	0	1	-2	0	0
	$\Omega^-$	$0(\frac{1}{2}^+)$	1672.5 MeV	$0.82 \cdot 10^{-10}$ s	$\Lambda K^-, \Xi^0\pi^-, \Xi^-\pi^0$	0	1	-3	0	0
	$\Delta^{++}$	$\frac{3}{2}(\frac{3}{2}^+)$	1230 MeV	120 MeV	$p\pi^+$	0	1	0	0	0
	$\Lambda_c^+$	$0(\frac{1}{2}^+)$	2284.9 MeV	$0.2 \cdot 10^{-12}$ s	$p\bar{K}^0, pK^-\pi^+, \Lambda\pi^+\pi^0, \dots$	0	1	0	1	0
	$\Xi_c^0$	$\frac{1}{2}(\frac{1}{2}^+)$	2471.8 MeV	$0.11 \cdot 10^{-12}$ s	$\Lambda\bar{K}^0, \Xi^-e^+\nu_e, \dots$	0	1	-1	1	0
	$\Lambda_b$	$0(\frac{1}{2}^+)$	5624 MeV	$1.2 \cdot 10^{-12}$ s	$\Lambda J/\psi, pD^0\pi^-, \Lambda_c\ell^-\bar{\nu}_\ell, \dots$	0	1	0	0	-1