LIGHT UNFLAVORED MESONS $(S = C = B = 0)$

For $I = 1$ (π, b, ρ, a): $u\overline{d}$, $(u\overline{u} - d\overline{d})/\sqrt{2}$, $d\overline{u}$;
for $I = 0$ (η, η', h, h', ω, ϕ, f, f'): $c_1(u\overline{u} + d\overline{d}) + c_2(s\overline{s})$

$\pi^{\pm}$

$I^G(J^P) = 1^-(0^-)$

Mass $m = 139.56995 \pm 0.00035$ MeV [a]
Mean life $\tau = (2.6030 \pm 0.0024) \times 10^{-8}$ s
$c\tau = 7.804$ m

$\pi^{\pm} \rightarrow \ell^{\pm}\nu\gamma$ form factors [b]

$F_V = 0.017 \pm 0.008$
$F_A = 0.0116 \pm 0.0016$ (S = 1.3)
$R = 0.059^{+0.009}_{-0.008}$

π^- modes are charge conjugates of the modes below.

π^+ DECAY MODES			Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
$\mu^+\nu_\mu$		[c]	(99.98770 ± 0.00004) %		30
$\mu^+\nu_\mu\gamma$		[d]	$(1.24 \pm 0.25) \times 10^{-4}$		30
$e^+\nu_e$		[c]	$(1.230 \pm 0.004) \times 10^{-4}$		70
$e^+\nu_e\gamma$		[d]	$(1.61 \pm 0.23) \times 10^{-7}$		70
$e^+\nu_e\pi^0$			$(1.025 \pm 0.034) \times 10^{-8}$		4
$e^+\nu_e e^+ e^-$			$(3.2 \pm 0.5) \times 10^{-9}$		70
$e^+\nu_e\nu\overline{\nu}$			$< 5 \times 10^{-6}$	90%	70
Lepton Family number (*LF*) or Lepton number (*L*) violating modes					
$\mu^+\overline{\nu}_e$	*L*	[e]	$< 1.5 \times 10^{-3}$	90%	30
$\mu^+\nu_e$	*LF*	[e]	$< 8.0 \times 10^{-3}$	90%	30
$\mu^- e^+ e^+ \nu$	*LF*		$< 1.6 \times 10^{-6}$	90%	30